"ORIGIN OF SPECIES" . . . . . CAUSEY

THE BIOLOGIST

Vol. XVI, No. 1 Sept.-Dec., 1934

EXPANSION NUMBER

PHI SIGMA
BIOLOGICAL HONOR SOCIETY

"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should now be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."

Mile Posts:

1915 March 17, Alpha Chapter organized, Ohio State University.

1916 May, Central Governing Body organized, BIOLOGIST first issued.

1917 June, last War-time BIOLOGIST issued.

1921 February, BIOLOGIST revived.

1924 December, First National Convention, Constitution revised, Washington, D. C.

1925 December, Second National Convention, First Scientific Program, Kansas City.

1926 December, Third National Convention, Second Science Program, Philadelphia.

1927 December, Third Science Program, Nashville.

1928 December, Fourth National Convention, Coat-of-Arms adopted, Fourth Science Program, New York.

1930 January, Council Meeting, Ritual Revised, Norman, Okla.

December, Fifth National Convention, Fifth Science Program, Cleveland.

1931 Phi Sigma Letters Registered, U. S. Patent Office.

1932 December, Sixth Science Program, Atlantic City.

1933 June, Sixth National Convention, Seventh Science Program, Chicago.

Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - - Any petitioning group must be active for at least one year before it may be granted a charter."

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WHO'S WHO
In This Issue

David Causey: "Darwin and the Theory of Evolution"

Dr. Causey needs no introduction to readers of the last "Biologist." His interest in Phi Sigma is genuine, and his letters are an event of stimulating proportions in the editorial office. From a friend of his at the Pittsburgh meetings we extracted the interesting information that most of his creative writing is not done at the University of Arkansas but in a little building which he has put up for that purpose at the rear of his garden, and where, away from the distractions of home and university life he communes with his soul!

Frank H. Roberts, Jr.: "Archaeologenesis"

Receiving his A.B. and M.A. at Denver, Dr. Roberts first instructed at his alma mater until 1924, during the last two years of which time he was also an assistant curator at the fine museum of which Denverites have so much reason to be proud. Thence to Harvard, where he received his Ph.D. in 1927, and acted as assistant in anthropology for a year. In 1926 he was appointed archeologist in the Bureau of American Anthropology, whose expeditions he headed for the next six years. Able to see the human side both of his work,—as this article gives ample proof,—and of his findings, he receives considerable favorable publicity in relation to the earlier citizens of the great Southwest.

Arthur Sperry Pearse: "Being a Member"

The "Biologist's Philosophy of Life" in our last issue received much favorable comment. Here we have the Why, and the How which lie behind that philosophy in its social aspects. Leave it to Dr. Pearse to say the right thing, at the right time. Checking over the back issues of this journal the other day we came across a lamentation from Zeta Chapter on Dr. Pearse's transfer to Duke University. After you read this very human document you will not wonder why.

Ben Beach: "The Pittsburgh Meetings."

Benny is no biologist. He is only a student secretary in the editorial office. But he waded through the A.A.A.S. program for the last meetings with the Directories of Phi Sigma and collected all the data for this long, but refreshing report on the research being presented by present and former Phi Sigma members. Benny gets the "by" line because your editor had neither the time nor the patience to work through the mass of material.

DARWIN AND THE THEORY OF EVOLUTION

By Dr. David Causey,
Associate Professor Zoology, University of Arkansas

SEVENTY-FIVE years ago "The Origin of Species By Means of Natural Selection; or the Preservation of Favored Races in the Struggle for Life," appeared. It was written by a retiring country squire, a semi-invalid with hypochondriac tendencies, who was scarcely known to any but a few scientists. He had lived a half century in more or less obscurity, and there were few who had any thought that the remainder of his life would be any different. It is true that he had written a book or so, but many people have done that, and aside from a few praises from those capable of judging and the customary reviews nothing much had come of them.

The "Origin," however, was a bomb that shook old England mentally as only one of Cuvier's cataclysmic upheavals could shake her physically, and the obscure writer became the center of a bewildering tempest. For a brief time the shell-shocked clergy scarcely realized what had happened, and when they rallied to the attack they merely succeeded in goading Darwin's famous bulldog, Thomas Henry Huxley, into so violent a defence that the keenest of the churchmen winced under his bite.

Good fortune makes many men great, and Darwin was no exception to this. A great mass of biological knowledge was at hand, a mass which had been accumulating since the days of Aristotle and Pliny. Although it had come down through the hands of such worthies as Buffon, Cuvier, Lamarck, and Linneas, it had not been given any organization which promised to stand the test of time. There were untold numbers of isolated facts, strange agglomerations here and there, and, of course, theories. But they were largely armchair theories, speculations based more on fancies than on prosaic facts. That a scientific theory must be so cast as to be capable of being tested is a relatively modern concept, as is also the self-verifying power of prediction. Darwin made use of this great mass of information which he found, adding to it, reorganizing it, stripping it of the mysticism so dear to his predecessors, and working it into a theory that has served as the keystone of biological thought.

He was fortunate in getting the appointment as naturalist to H. M. S. Beagle, starting for a trip which led around the world, taking some five years. Most of this time was spent in South America or along its

coast. Although his father at first refused to let him go, demanding as the price of his consent that he find, "any man of common sense who advises you to go," yet I suspect that the Darwin family breathed sighs of relief when young Charles sailed.

Only a fair student, and one indifferently drifting, first into medicine and then towards the church, he had given splendid promise of doing nothing with great success in his later life. The voyage gave the young man a chance to explore unknown countries, to utilize and develop his great powers of observation, and to pit fact against fact and theory against theory. He returned as a man with something very definite to do, a man so changed that his father thought his very head had a different shape!

Again, and I mention it not for the comfort of the snivelling failures of this world's populace but as a simple fact, Darwin was fortunate in that his father was a wealthy man with means ample to provide for a son incapable temperamentally and possibly physically, of earning a living. The "Life and Letters" are full of bad health and commiseration unworthy of a man who had endured the hardships of Tierra del Fuego, Patagonia, and the Andes, and lead one to suspect that he was a hypochondriac fortunate to be able to afford his ill health. Be that as it may, had young Darwin had to earn his keep, there can be little question about his life work. The world would not have received it. Imaginary illness is fully as hard on the patient as real sickness, and Darwin struggled against it for a half century.

Lastly, in this list of good fortunes, were his scientific friends. Lyell, who made modern geology a science, served as mentor as long as he lived. In many ways the "Origin of Species" was an extension into biological topics of the principles Lyell had laid down for geology. Darwin's big question when the Origin appeared was "Has Lyell come round to it?" Then there was Hooker, the keen scholar to whom Darwin could turn for botanical knowledge not to be found in books, and whose good opinion ("the most capable judge in Europe") he sought with much quaking in his boots. If Hooker approved Darwin knew that all was well and that in time the lesser men of science would eventually come to understand and to accept.

And there was Asa Gray, another botanist across the seas at Harvard, busy with his Manual and crossing swords with the great Agassiz, but always finding time to do the dullest of statistical and geographical distribution work if it would help the obscure Englishman get his facts in order. How Gray must have winced at some of Darwin's questions,

ranging from some a high school student of today would smile at to some that no one, not even Gray or Hooker, could answer. Last of the great friends was Huxley, a young man already wearing the mantle of greatness in science, fearless and completely devoid of the faintest tinge of respect for authority or loose reasoning. At the first hint of the battle, we find him gleefully "sharpening up my claws and beak" as he wrote to Darwin. What a champion for a man too sick to fight his own battles! Wallace might be added to the list, a modest, friendly man who quietly stepped aside to let Darwin have all the glory in which he might, and justly, have demanded a share.

Darwin was as methodical as a man could well be. He gathered his notes for twenty years, during which time he read whole files of periodicals—solemn scientific journals and the most plebeian of stock breeders' and pigeon fancier's papers. He joined the clubs of such practical men and raised pigeons himself to get first hand information, and he harried the truck gardeners of all England for odds and ends of information. He translated depressing German sentences in painful stubbornness, word by word (none of which he could pronounce). Always he was copying out the things useful from borrowed volumes, marking his own or tearing the pages out. Several books eventually came from those notes, yet he died without exhausting them. When the reading and the note-taking, or the still more laborious writing became too much for him, he relaxed by carrying out some simple experiments. The fertilization of orchids, the ways of climbing plants, the movements of plants, the fertilization of flowers—with such topics he relaxed, and from these resting periods, of which he was half ashamed, came papers which in turn grew into books.

"Vidi, vidi, vidi" must have been Darwin's motto. Nothing was too great or too small to escape his seeing. You can't read two consecutive sentences and fail to be aware of it. He saw, and he wondered, and he jumped to a conclusion. He confessed that he had to have a theory for everything. But the jumping to a conclusion was a strictly private jump, one that landed on fertile soil while he reviewed it and tested it and consulted those famous friends, Lyell, Hooker, or Huxley, perhaps faraway Gray. Maybe all of them would be consulted, maybe it was put on the shelf for a few months or a few years. What did time matter to Darwin? In time the theory was established, backed by more facts than books had room to hold. Strange, indeed, were some of the minor things he saw and what came out of them: mud on a bird's foot,

a square yard of English soil and what tried to grow on it, the effect of earthworms on Roman archeology and on English pasture.

A characteristic which brings him closer to some of us was his stubbornness. When he had seen and fought his way through the self-raised difficulties in explaining a doubtful point until he had reached a conclusion, he kept it. All of them, Lyell, Hooker, Huxley, and Asa Gray could turn thumbs down, but they gestured in thin air unless they could either prove him wrong or give him a more plausible explanation. When Huxley shrugged his shoulders and refused to touch the idea of Pangenesis with a ten-foot pole, Darwin trusted that men of a wiser generation would see clearer, and he put it into his book. We believe that Huxley was right. We think the idea was mere moonshine, but it was the best light Darwin could find, and as he claimed, it did explain many difficult matters. It was his theory and he stolidly stood behind it.

He was a plodding, not a brilliant soul. There is nothing flashy or scintillating in his work, and a schoolboy could repeat any of his experiments. They were crudely simple and beautifully clear. His family laughed at his meticulous weighing on an unreliable balance, at his faith in the accuracy of a cheap graduated cylinder, at his trust in the wrongly computed conversion tables. Always he was as careful as a bride boiling water, always he envied those dashing laboratory chaps who could do things. He often couldn't, and called in his boys to help. But he plugged away, two hours a day, sick or well, writing a few sentences, trying a simple experiment. He grew desperate about things that wouldn't clear up. Maybe Gray knew about it, maybe Hooker the inexhaustible could help a bit by making a list of the plants which grew in the Alps or in New Zealand. How they must have sighed when Darwin's letters came in the mail. If they failed, there was still the Huxley acid that swept away the dross, and what was left was pure gold.

He says that he opened his first notebook on the species question in July, 1837. He had started on the voyage of the Beagle, believing in the fixity of the species. He returned greatly puzzled. Species seemed anything but fixed. So he opened a notebook, and methodically set about gathering all the information he could find upon species. In 1839 he read Malthus on "Population," and just as happened to Wallace years later, the idea of the struggle for existence came like a streak of lightning in the dark. The struggle for existence might select the more fit. In 1842 he "first allowed myself the satisfaction of writing a very brief abstract of my theory in pencil in 35 pages." By 1844 this had been enlarged into one of 230 pages. Those friends, Lyell and Hooker, knew

of this work, and Lyell advised in 1856 that he write out his views "pretty fully." This he began "on a scale three or four times as extensive as that which was afterwards followed in my 'Origin of Species', yet it was only an abstract of the materials which I had collected, and I got through about half the work on this scale." Then came Wallace's essay!

Wallace was in the Malay Archipelago making a poor living collecting specimens. One day while lying in bed wrapped in blankets and torn with intermittent fever, shivering with a chill when the thermometer said 80° Fahrenheit, he pondered over the same question of the origin of the species. Malthus' "Essay" coming to mind, he thought out during the two hours fit of ague the essay which he sketched out that same evening. Some two or three days later, the finished paper was on its way to Darwin!

That Darwin was crushed when he saw his life work written out by a total stranger is only natural. His letter to Lyell, June 18, 1858, shows the blow he had received. " . . . Your words have come true with a vengeance—that I should be forestalled . . . I never saw a more striking coincidence; if Wallace had my MS. sketch written out in 1842, he could not have made a better short abstract: Even his terms now stand as heads of my chapters . . . So all my originality, whatever it may amount to, will be smashed, though my book, if it will ever have any value, will not be deteriorated, as all the labour consists in the application of the theory."

Such could not be. Lyell and Hooker took the matter into their own hands. Part of his twenty years old abstract, and a letter to Asa Gray were taken by these great friends and with Wallace's essay were read as a joint paper before the Linnean Society on the Evening of July 1, 1858. There was no discussion. Hooker wrote that it was "too novel and too ominous for the old school to enter the lists before armouring." Then poor Darwin, torn about the honorableness of the action, by doubts as to what far away Wallace would think about the whole action, by worries a less sensitive and more healthy man would have never felt, settled down to abstract his notes for publication.

The huge, half written volume was abandoned. A new one, very short, a mere five hundred pages, was to be prepared. It had to be all meat, with no marshalling of the score of years' collection of facts, no footnotes and no citations dear to the scholarly worker. In a trifle over a year, in November, 1859, it was on the bookseller's counter, and the first edition of 1250 copies sold out the first day. At the very last, be-

cause he had altered page proof considerably, he tried to argue Murray into letting him pay part of the expenses caused by the revisions. Murray mustn't lose by publishing the "Origin of Species!"

The reception of the "Origin of Species" is too long a story. We can give only the oft-related climax of the early and dashing attacks. The long and none too sportsmanlike guerrilla war with its sniping wore on for many years. At the meeting of the British Association at Oxford in 1860, the Bishop of Oxford, crammed by the ancient and shifty Owen, reviewed the weaknesses of the theory, and flushed with his imagined success turned to Huxley and asked "whether Huxley was related by his grandfather's or his grandmother's side to an ape?" Huxley slapped his knee, and turning to his neighbor, whispered, "The Lord hath delivered him into mine hands."

In his famous reply Huxley said, " . . . a man has no reason to be ashamed of having an ape for his grandfather. If there were an ancestor whom I should feel ashamed in recalling, it would be a *man,* a man of restless and versatile intellect, who, not content with an equivocal success in his own field of activity, plunges into scientific questions with which he has no real acquaintance, only to obscure them by an aimless rhetoric, and distract the attention of his hearers from the real point at issue by eloquent digressions, and skilled appeals to religious prejudice." There was great excitement; one lady seized the opportunity and fainted, but the Bishop made no reply. He had said too much already.

Seventy-five years are not long for the reaching of a true evaluation of Darwin's work. Certain results seem to stand out. The idea of species by creation is definitely dead. There is a general acceptance of the theory of evolution by those competent to judge it, and this acceptance is due to Darwin's labors. A long line of thinkers from the Old Greeks down to his time had suggested the possibility. Darwin collected the evidence which established it. In addition Darwin has spurred the scientific world into an inquiry regarding the validity of his theory of the cause of evolution (by natural selection) and those theories offered by other students of the matter. None of these explanations of the cause of evolution seem decisive, and while one hesitates to say that Darwin's explanation is the most widely accepted of them all, one can certainly say that it has colored more biological thought than all the rest put together.

One thing stands out clearly. No thinker in the world of science since Newton has so profoundly stirred and shaped scientific thought as

has Charles Darwin. In doing so he struck off the last weak and rusty shackle which held science subservient to theology. The "Origin of Species by Means of Natural Selection" was an emancipation proclamation, a notice to the world that men had the right to think, and to think without censorship.

THE NEW YEAR

Let me but live my life from year to year
With forward face and unreluctant soul;
Not hurrying to, nor turning from the goal;
Nor mourning for the things that disappear
In the dim past, nor holding back in fear
From what the future veils; but with a whole
And happy heart, that pays its toll
To youth and age, and travels on with cheer.

So let the way be up the hill or down,
O'er rough or smooth, the journey will be joy;
Still seeking what I sought when but a boy—
New friendship, high endeavor, and a crown,
My heart will keep the courage of the quest
And hope the road's last turn will be the best.

—Henry Van Dyke.

GARDENER'S CREED

I. who have loved the earth so much, shall have no fear at last
Of the cool brown earth, that will shelter me from every cruel blast;
My bed will be wrapped so sweetly round by the tender, teeming mold
Which quickens anew the winged seeds of the primrose and marigold.

I, who have loved the yearly spring of budding leaf and stem,
Shall lay me down with no sad regret, nor wish a requiem:
Knowing my hands, that delved in the earth through life, in death's repose
May give white grace to a lily's cup, or fragrance to a rose.

—Maud Chegwidden.

ARCHAEOLOGENESIS

By FRANK H. H. ROBERTS, JR., Archaeologist,
Bureau of American Ethnology, Smithsonian Institution.

AFTER spending a number of years in the pursuit of an archaeological career one can not escape the conclusion that a majority of people regard an archaeologist as a strange and unusual "biological specimen." The lifted eyebrows and peculiar intonation of the: "Oh, so you are an archaeologist;" are identical with the expression, facial and vocal, evoked by a new and different kind of bug or rare variety of plant. Perhaps, since this is the case, a series of rambling paragraphs on archaeologists and what they do may not be amiss in a publication such as the *Biologist*.

A recent popular book on the subject of ruins and the men who dig in them raised the question "what is an archaeologist and why?" The first part of the query was discussed in a very satisfactory manner, but the second was lost in the development of the first. Whether this was intentional or an oversight can only be answered by the author of that particular book. The writer of this article, however, is inclined to think that the omission was intentional because after spending 15 years in the profession he is still wondering about the why.

The best explanation to date is that it is the case of the small boy who has never grown up and who is still indulging his desire to dig for buried treasure. Of course the "treasure" is only broken pots, arrowheads, implements of various kinds, bone or stone or shell beads, and refuse from the kitchens of families long since disintegrated into the dust from which they sprang,—just a lot of junk from the rubbish heaps of the past. Nevertheless it is material from which fascinating fragments from the missing fabric of history can be restored. Therein, mayhap, lies the lure which attracts and holds the interest of otherwise seemingly serious-minded men.

The dictionary says that an archaeologist is one who studies, who is devoted to, or is skilled in archaeology. In true dictionary fashion this statement requires one to turn to the definition for archaeology and he reads: "The science of antiquities; in its widest sense, the branch of anthropology, embracing archaeography, concerned with the systematic investigation of the relics of man and of his industries, and of the classification and treatment of remains and records of any or every kind, whether historic or prehistoric, of ancient places, customs, art, etc." So far so good but the definition, like the old recruiting posters, omits more

than half the picture. It is the unseen part which tries the soul and brings gray hairs and wrinkles. Visitors to a dig frequently ask what an archaeologist ought to know and when they hear the humble reply: "As much as possible about everything;" they immediately evince an expression which plainly says: "There, I knew he was crazy."

The common conception of an archaeologist depicts him as an old man with sallow skin and flowing beard. He is thought of as hiding away in a dusty alcove or garret where he fondly caresses fragments from a broken vessel or gazes enraptured at a spearhead. In bygone age such a person may have existed, but at the present time he would be as much out of place as an alchemist in a modern laboratory. The practical, practising archaeologists of today are all middle-aged and young men. They needs must be because the life is a strenuous one.

Most people know that an archaeologist in the field digs out various kinds of relics, that he occasionally uncovers human skeletons, working with meticulous care so as not to damage a single bone. They, also, are dimly aware of the fact that when he returns from an expedition he must unpack, clean, mend, catalog, study and classify his specimens and that he is expected to prepare a report on his activities and his various finds. What they seemingly do not consider is the multitudinous variety of tasks which he must perform in the field and the broad general knowledge which he should have in order to function properly as an archaeologist. That is the side of the profession which definitions omit, the part which comprises the undiscernible half of the picture.

If archaeology was all that the man in the field had to contend with life would be easy. Alas, the smallest part of the daily routine deals directly with the subject he presumably is sent out to pursue. First, he needs be an expert in the matters of camp equipment and camping. He should be an excellent dietitian so that the proper kinds, quantities, and qualities of food supplies may be purchased, not forgetting to keep his eye on the frequently all too meager funds available for such stores. Then he really ought to know how to cook the meals or to direct their preparation in order that due regard is paid to the all important proper balance of vitamins, calories etc., which the specialists in the subject of nourishment insist correct feeding requires.

He must be a good first-aid man ready to bandage cuts and bruises, to care for smashed fingers and toes, to treat the resulting damage when a careless workman puts a pick through his foot instead of into the ground, or even to set a broken arm or leg. A fair understanding of general basic, rough and ready remedies for stomach-ache, tooth-ache, etc., is a

prime essential taken as a matter of course. In addition he should be a good geologist, a palaeontologist, a surveyor, a photographer, good at sketching and drafting, an engineer, a carpenter, a mechanic of sorts, a stone mason, a blacksmith; not to mention a bookkeeper, a typist, and other useful little trades. The writer frankly admits that he fails to qualify in many of the requirements but remembers distinctly occasions in which he has had to attempt most of the things just mentioned, and how he wished that he had been better equipped to do them.

The preparation of a camp is not such a serious problem but it is surprising what one really ought to know in order to make such a place comfortable and convenient. Experience is a great teacher, however, and after a few years it becomes second nature to choose the right kind of tents, to pick the proper spot for them and to arrange many little details that spell the difference between comparative ease and a thoroughly disagreeable existence. After many seasons one learns that the members of an expedition derive great joy from growling about the food and complaining that they are underfed. So he ceases being concerned about it and lets them have this bit of pleasure. When the camp breaks up it is almost the rule that the scales will show a gain of several pounds for each and every member of the party. There is always an exception, of course, but he generally is a person who needed to lose.

The first-aid kit and medicine chest always play an important part. The writer can recall innumerable cuts and abrasions which he has had to dress, some quite unimportant, others decidedly serious. He has had a workman cut off a toe and the nearest doctor 80 miles away over almost impassable roads. Broken arms have had to be set. Fortunately when the patients reached a doctor the initial repair work was found to be entirely satisfactory. Severe gashes occasionally have to be sewed up. Such occurrences demonstrate beyond dispute that the human skin is decidedly tough and that an ordinary needle and thread are not as well adapted to such a purpose as could be desired. Tooth-ache is not at all unusual in a camp where many workmen are employed. Many ailing molars have passed under the writer's observance and have received preliminary treatment.

One prominent field man who works in out of the way places where the natives suffer considerably from bad teeth carries a complete set of forceps as a part of his equipment. Through an adept use of them he has made a great reputation as an extractor. Another man, well known by the writer, on one occasion was forced to amputate a boy's arm at the elbow to stop the spread of gangrene. To complicate matters there

was no anaesthetic at hand. However, the operation was not only performed successfully, with a pocket knife, but the patient lived. Since that time the man has carried a set of surgeon's knives and drugs to deaden pain. Much to his own delight, though, he has never had to use them.

Geological knowledge is necessary in order that a proper description of the deposits in which one works may be included in the report,—also for a proper identification of the materials from which stone implements are made. One must needs know bones in order to determine what he is finding. At least a passing acquaintance with the subject of surveying is essential so that proper plans, maps, diagrams etc., may be prepared. If the archaeologist does not have to attend to that himself, a rare occurrence on most expeditions, he should at least be able to tell his surveyor what he wants done, what is needed in the way of charts. Frequently a rough sketch must be made of an object in situ, as an aid to proper notation and a guard against photographic failure.

The matter of photographs is all important and it is a rare thing to find a field party which can afford a professional camera man. Hence the archaeologist must be able to take his own pictures. He has to make or superintend the making of boxes in which to ship specimens, has to know how and when to install braces to support sagging walls, in fact do all manner of rough carpentry. Motor equipment supplied to expeditions is rarely of the best and the ability to nurse some creaking bit of machinery back to running order will not come amiss. In the days of the old Model T desperation drove one field man to the discovery that bacon rind made excellent bands. Another learned that a worn and slipping clutch became quite serviceable after an application of salt.

Some appreciation of the blacksmith's art is gained by efforts at sharpening picks, mattocks, and other instruments of toil employed in digging. Sometimes an expedition has to depend on horses and mules for its transportation or for the motive power to pull the heavy implements used in handling dirt. Needless to say the animals occasionally have to be shod. Lucky is the field party that is located within striking distance of a good smithy. The writer vividly recalls one peaceful Sunday morning in northwestern New Mexico when it was decided that Jack, the mule which pulled the dump cars, needed shoes. One of the party said he could do the work if we could get Jack in the proper frame of mind. It took eight men two hours at the cost of one pair of trousers, two shirts, and countless bits of skin of varying shapes and sizes to get the mule firmly trussed so that he could be properly shod. Just one of

the little incidents in an archaeologist's life, the sort of thing which never finds its way into official reports.

Perhaps the most trying, as well as tedious, of all the duties connected with the conduct of an expedition is the keeping of books, the making out of pay rolls, the typing of expense accounts, the recording of notes, and the checking of purchases. These are things which simply must be taken care of no matter how late the lantern burns at night. Furthermore, there are little personal jobs to be attended to after everything else is done. A dig is often so located that laundries are inaccessible and the archaeologist must turn to and wash his own clothing, not to mention attempting such mending as may be required. Some camps even support the luxury of an iron and not a few of the men are unusually skilled at pressing shirts and other bits of apparel.

In view of the foregoing paragraphs, bearing in mind that the field man must know and do some archaeology, the reader will understand why an archaeologist feels sincerely and without conceit that to be a success in his profession he should know, "as much as possible about everything."

The word "science" included in the definition of archaeology is a trouble maker, it has set-off more forensic fireworks than anything else connected with the subject. When an archaeologist is feeling low in his mind and is seeking some justification for his existence he may soothe his vanity with the thought that he is a "scientist." In this day and age when "Science" is the popular and intellectual fetish it is comforting to think that one is a member of the élite. It is also very helpful to be able to tell a questioning layman, who doubts the value of all such stuff anyway, that it is Science. No further vindication is needed.

At this point, however, along comes a botanist, an ichthyologist, an ornithologist, a mammalogist, a conchologist, or an entomologist and wants to know what he means "a scientist?" "Everyone knows that archaeologists are just hangers-on lurking in the extreme outer fringes of Science, and that they are permitted that sanctuary only through the magnanimity of the true disciples of the inner circle." The archaeologist, usually with a full appreciation of the absurdity of the whole situation, takes up the gauntlet and the battle is on. All because some ancient lexicographer inserted the troublesome word in the definition of archaeology. As a matter of fact few members of the profession actually consider themselves scientists or even take the trouble to discuss the subject, unless it be in a facetious manner as a form of recreation.

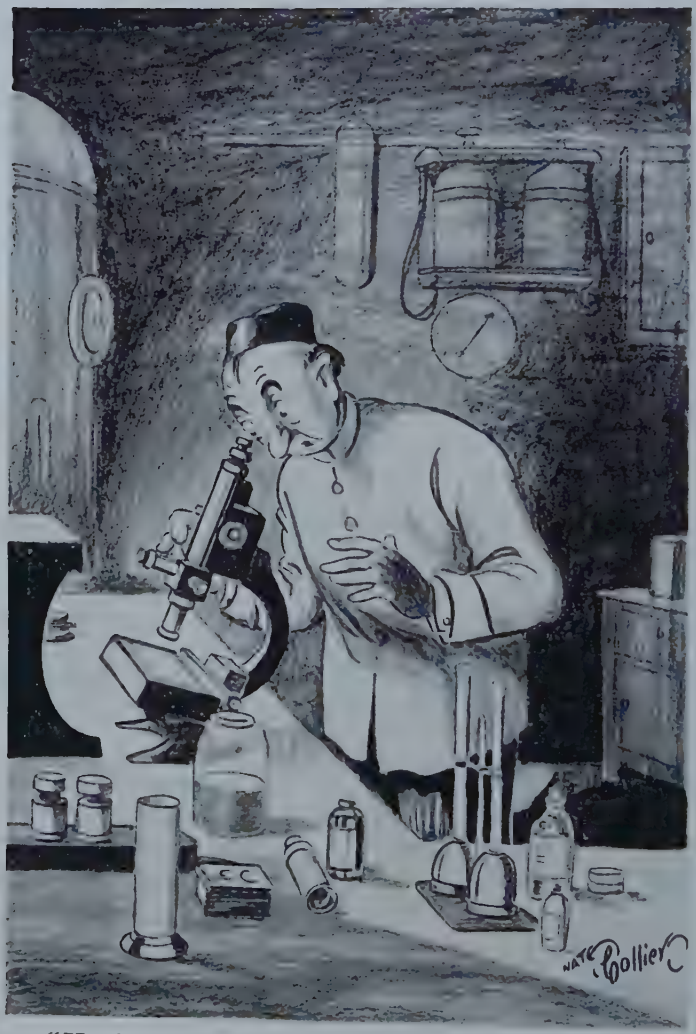
Seriously, though, archaeology has made some slight contribution to science in general and some of the natural sciences in particular. No claims are made for revolutionary discoveries in the world of Biology or some of the other "true" sciences, but certain additions have been made to the body of knowledge comprising those disciplines. Archaeologists in their routine work have carefully preserved bits of plants, bird, fish, animal bones, shells, etc., and have turned them over to specialists in the various branches of science represented in such collections. In many cases these specimens have been of considerable value in extending ranges of distribution, have even established new species.

Climatic changes in some areas have been demonstrated by the difference between the flora and fauna shown by the archaeological material and that of the present day. Occasionally it is possible to determine the time element involved and to date within a few years the period when such a change took place. The last eruption of a volcano in Arizona was found by archaeologists to have occurred in the 9th century A. D., and not 15,000 to 20,000 years ago as the geologists maintained.

Many young men are attracted to archaeology because they feel that it offers unlimited possibilities for adventure. This is true, to some extent, but the hair-raising exploits detailed in Sunday supplements are usually the result of someone's blunder, of poor planning on the part of the leader, or are merely outpourings from an overly active imagination. A well organized, properly conducted field party rarely has narrow escapes from threatening disaster for the simple reason that such situations are carefully avoided. Consequently the person who goes in for archaeology with that as the main incentive is certain to be disappointed.

On the other hand the subject does offer a career of diverse and irresistible interests to the young man not afraid of hard work and tedious detailed studies. He gets to visit out of the way places and takes part in events which, even though they may not be extremely exciting, are often highly entertaining. His life is generally so divided between field and office work that he tires of neither and he finds that there are many compensations for the onerous round of duties which he has to perform.

Education must be gained by the person who is being educated chiefly through his own interest and energy. There are too many schemes, plans and systems and not enough of the simple, fundamental things that underlie genuine education. It seems that too often we start building the roof in place of the foundation of our educational structure.



"Hm! He's always running after that blonde"

Courtesy of ESQUIRE, the Magazine for Men.

Being A Member

By Dr. A. S. Pearse,
Professor of Zoology, Duke University

SOCIETY would be impossible if all men were free and equal. The wise and aggressive will ever direct the energies of the stupid and backward. Geneticists daily grow more positive that each individual comes into the world with a definite range of capabilities. Such powers may remain potential and are often diverted so as to make an individual undesirable because environment is unfavorable for their development, or they may make a respected member of society.

Organization is essential in any society. There must be established customs, delegation of authority, disciplines, penalties, and rewards. In a social organization an average member is usually safe and more or less happy. All things considered it is perhaps best to be an average member. The weak incompetent and the nonconformist are often eliminated in the struggle for existence. The able, rich, and powerful are sometimes worshiped as heroes, but are perhaps more often the subjects of jealous resentment.

As human society becomes more ripe, cultured, and complex it grows more difficult to be a member. Long years must be spent in formal and informal education which teaches one how to think what others have thought and are thinking and to do what others have done and are doing. Thus essential social activities become more or less of a burden. A person must expend most of his energies in being even an average member.

Man stands proudly today, the dominant animal on the earth. He has struggled up from aquatic ancestors to live as an astute thinker in a variable, stimulating environment. He has progressed beyond a savage state, when his activities were devoted largely to finding food to keep his organic machine moving, rearing offspring to continue his family, and avoiding dangers. He now has advantages such as no other animal enjoys. He has time-binding, extra-corporal songs, stories, books, homes, machines, inventions, and ideals which his social life makes it possible to pass on with accumulations from generation to generation.

In the modern world, which man has in part inherited and in part made, there are three great forces which continually change civilization —commerce, religion, and science. Commerce has a selfish materialistic side which admits profit as its aim, but it also has a finer aspect which

makes those who trade more tolerant, liberal, and thoughtful of others. Commerce has made the world safer, more comfortable and progressive.

Religion has been the common source of ethical standards. It has inspired many who might have lived average lives to think noble thoughts and do great deeds. It has often dominated politics and government. When firmly established it has often failed because selfish priests claimed to be the sole agents of God and because creed was put before social service. Priests appear usually to be too human to continue to use wisely the influence they acquire by serving their fellows.

Science has made the world more rational, safe, and convenient. Theoretically science can never be wrong because it seeks for truth concerning the world as it is. But scientific progress has not changed human nature. Scientists may be partisan bigots or selfish opportunists, and block the progress of civilization. Scientific discoveries do not always improve society. The radio is used to inform illiterate people that the world is flat; the aeroplane is an important agent in waging war; heroin has made possible a new and terrible group of drug addicts. Men are not equal. With all the opportunities in the world today, they are not always wise and good.

What a man most desires as a social animal is recognition. This is an old, inherent quality of the human race. In part it is the result of necessity. The more capable must tell the incompetent what to do. But as civilization has ripened many types of formal recognition have grown up—some like rank weeds and some like lovely flowers. Primitive tribes in darkest Africa and wild Papua have lodges and societies; with secrets, signs, and other time-honored appurtenances. Admission to all societies is deemed to be more or less of an honor. Members must have merit, peculiar or to some degree. No one wishes to be a member of the Moron Society or the United Idiots.

But men long for recognition for everything from being a good fellow to being the most useful member of the society. Everyone desires to be distinguished. Being a member means that one is above the average. This makes men joiners. Societies of all sorts and conditions flourish. At times they become pests. Often they merely add to the burdens of numerous formal social procedures. It is worth while to think carefully and critically about what being a member means.

A man who is in any way above the average must belong to some society. As no two people are equal, so no two members are equal. There are all kinds and degree of members. As a member of fifteen societies, including the American Federation of Labor and Phi Beta

Kappa, the writer has the temerity to classify members into six groups: (1) lonesome loafers, (2) callow cut-ups, (3) silly snobs, (4) crafty creatures, (5) intense idealists, and (6) curious cusses.

Lonesome loafers are members just to be with people. College fraternities are commonly known as either "social" or "honorary." Though the latter name is not always appropriate, the former probably is. Members of a social fraternity are of course not all of one type. However, most common people like Rotarians and Methodists are "social" members. They are merely living; perhaps as members better, more comfortably, or more extravagantly than their fellows, but just living. Being a member permits them to live more surely and better.

Callow cut-ups try to have a good time. They never mature so that they become responsible persons. They consort with like spirits because they have a certain degree of energy which needs to be discharged, but they are too lazy to work or even think much and too irresponsible to conform to strict and irksome conventions. Such members keep busy with idle pursuits. They organize bridge clubs, play roulette, attend teas, and wear clothes. Such members have a certain respect for one another because each has attained some degree of expertness in social procedures. They are the social set and their names appear in the newspapers under "Society." They know what to do among people but do little or nothing for people.

Silly snobs often work hard. They are not irresponsible and lazy. They have a position in society which they respect more than anything. Sometimes these even do good in the world, for, to keep their self respect, they must do something that is recognized by society as worth while. Such members are virtuous, careful, ever-watchful, conservative conformists. They belong to good families; or, if they have climbed up, they are ashamed of their origins. They tell other people how to behave, improve slums, raise money for charity—and at the same time usually live selfish, mean lives.

Crafty creatures are members solely to advance themselves. They do not have even as much honor as silly snobs. They join or resign as suits their present status and interest. They are social parasites who invade business organizations, churches, labor unions, and teachers associations. They are the loudest to shout, "Let us do thus and so to help our noble organization and uplift mankind," when thus and so will be of primary benefit to themselves. Here belong the charlatans, quacks, and shysters. They are joiners.

Intense idealists believe in something. They may be bigots, but they at least adhere to some standards of right and wrong. This means ideals. These members preach crusades; organize societies to save grizzly bears or to insure world peace; found homes for aged spinsters or stray cats; and induce politicians to pass laws. They are determined to uplift or degrade society. They know how to go to heaven. Such members often change social procedures. They are usually aggressive, earnest, and honest.

Curious cusses are thoughtful. They thirst for knowledge of things as they are. They may be knowers, accumulators, or producers. Some are satisfied expertly to know. Others compile knowledge in scholarly books. Above these are those who think out new relations—invent, theorize, create. Sometimes these members are obscure, peculiar geniuses; sometimes they are great intellectual leaders. One of them may found a journal for the publication of papers relating to palaeolithic artifacts or show his fellows how to build better highways. Such members furnish the knowledge on which social progress depends. Some are uninterested in society; others spend their energies in trying to use knowledge to make the world a better place for men.

Every man likes to think he is an uplifting member. Most of the Kiwanians who eat weekly luncheons together feel that they are thus helping mankind. Others who see them may recognize crafty creatures or silly snobs, but a member never sees himself in such ways.

What kind of a member am I? Well, I suppose I am something of a combination salad. I like to be with people because I am lonesome and enjoy wasting time. I know that being a member occasionally permits me to have a good time—to behave with others like an irresponsible kid; to make what I think are witty after dinner speeches; to cut-up with like spirits. Well, why not? I like it. Being a member does make me feel somewhat better than those who do not belong. I am perhaps just a little of a snob, but not silly. Hell, No! You know that I am not so self-satisfied that I have quit trying continually to grow into something bigger and better. Am I a crafty creature? Well, I know that in union there is strength.

When I want to accomplish something I naturally go first to fellow members, but—I hope you do not think that I am. When it comes to the upper strata, I just have to admit that, though I have a few ideals and like to think about big, inspiring things, as you well know, a fellow is unpopular if he is too extreme. I have a certain amount of courage, but a job is a job. I wish sometimes that I was Joan of Arc or

Abraham Lincoln—and maybe I could be. I want to see society flourish and I am a good citizen, but why make myself and everybody else miserable by trying to change everything. I guess I am just a sort of an ordinary member.

A SUSPECTED AMERICAN

WHEN potatoes came to Europe from America they were served for centuries as food for pigs only, about whose prejudices no one bothered. Human beings were up in arms against this new vegetable. Because there was no mention of it in the Bible it was banned in Scotland. In France it was not until 1753 that the savant Parmentier, who had become acquainted with potatoes while a prisoner of war, succeeded in inducing the King to taste them. William Cobbett, the English labor leader, preached that potatoes were a new means of oppressing the poor. Count Rumford in Bavaria smuggled them secretly into his kitchen in order to give them to beggars for their soup. Kings, beggars, prisoners, pigs, all had to cooperate in order to win for potatoes the place they deserve.

—*Williams & Wilkins Kalends.*

TITLES AND AUTHORS

THE *Book Window,* London, has conducted an entertaining competition for the most humorous combinations of actual book titles and authors. These are the winning "Juxtas," as announced in a recent number:

Kiss Proof. Oliver Onions.
A Musician at Large. A. Noyes.
What is Love? Quarrell and Quarrell.
Life Beyond Death. A. Hope.
Seats of the Mighty. W. H. Patch.
Come and Listen. Sir Arthur Yapp.
Gone to Earth. Edward Clodd.
Man who Broke the Bank. F. W. Hasluck.
Pan Pipes. Forrest Reid.
De Profundis. H. G. Wells.
Money for Nothing. Ernest Betts
How to be Happy Though Married. Samuel Smiles.
Its Smee. Arthur Mee.

—*Williams & Wilkins Kalends.*

Social Vitality

By Anselm M. Keefe, Ph.D.

THE issues of life confronting any organism are two fold; the problem of growth and the problem of reproduction. Upon the solution of these problems everything depends,—both for the individual and for the race. Curiously enough, very little stress has been placed on the fact that this law, while obvious enough in biology, works just as well in economics,—even if only by analogy.

No social organization can afford to allow its metabolic processes to fail, any more than a plant or animal. Neither can a human society,—granted it has any worthy warrant for existence at all,—afford not to spread its beneficent activities and so insure its social permanence. If Phi Sigma is worthy of existence, if its aims, purposes and ideals deserve a place in our scholastic life, then with the grim logic of all living processes its continued growth and reproduction *must go on,* and must go on indefinitely.

Here then is more than food for thought. Here is a biological principle which must be translated by living, and, presumably, thinking human units into action. The health and vitality of Phi Sigma must be our chief concern. Its social metabolism must be looked into, and stimulated if necessary. Its freedom and ability to spread must be insured.

As far as the metabolic processes go, a study of the individual chapters indicates that all is not exactly encouraging. Many chapters, it is true are flourishing and healthy. Some are too small, but they could be increased with little or no difficulty. Some, sluggish and torpid, are slowly dying of inanition. A few are already dead.

As is usually the case, the chapter, like a vital organ, is no better than the percentage of its weak, ineffective members against its strong, active ones. The growth and repair incidental to living must therefore in Phi Sigma, depend on the type of person who is given membership in it. No matter what local conditions may seem to indicate, there is no question that a definite national eligibility program should be adhered to, and chapters should see to it that a plentiful supply of interested, active and promising young biologists are recruited to our ranks each year.

This is frequently not the case. The "Powers that be" in many a chapter become intoxicated with their little taste of authority, and set themselves up as dictators of chapter policy. (This statement is not

meant as a criticism of any particular chapter or its officers. The author went through all of this years ago, so has almost everyone,—which may explain it but does not excuse it!)

So far as reproduction or chapter multiplication is concerned there are those short-sighted individuals who fail to see the natural implications of their attitudes. This brings us to our particular dilemma: Either Phi Sigma is destined to be the foremost national (or even international!) honor and professional society in general biology,—or it is not.

If it is to be *the* national organization then we must wake up to the fact, and go to work. If it is not, then its purposes and ideals are a sham and a mockery, and the sooner it disbands, the better. The former also implies that the chapters of Phi Sigma must be so spread and located that most worth while biologists have an opportunity for membership. Either that or Phi Sigma must make way for a better and more aggressive supplanter.

That Phi Sigma can be supplanted no one familar with the American scholastic picture has any doubts. There are any number of excellent colleges where an active honorary society could get a healthy start, and spread through twice or thrice the number of reputable schools now on our chapter rolls.

As a part of the National Council's investigation of expansion possibilities a study of the north central region was made and a list compiled of the following well organized, highly accredited and, in many cases, scientifically better staffed schools. Yet none of them has a chapter of Phi Sigma.

University of Arizona, Tucson
University of Arkansas, Fayetteville
Butler University, Indianapolis
University of Chicago
University of Cincinnati
Colorado Agricultural, Fort Collins
University of Colorado, Boulder
Creighton University, Omaha
Wayne University, Detroit
Illinois Wesleyan, Bloomington
Indiana University, Bloomington
Iowa State, Ames
University of Iowa, Iowa City
Kansas State, Manhattan
Marquette University, Milwaukee

Purdue University, Lafayette
St. Louis University
University of Missouri, Columbia
New Mexico State College
University of New Mexico, Albuquerque
Northwestern University, Evanston
Ohio University, Athens
Western Reserve University, Cleveland
University of Wyoming, Laramie

This list comprises only that area over which the North Central Association of Colleges and Secondary schools has accrediting power. How about the Pacific coast? How about the Southern schools? How about the Middle States and Maryland? How about New England? It all comes down to this: It is at present not a national distinction to belong to Phi Sigma. Whether this generation of Phi Sigmas want it to become such does not appear, but the National Council has come to the conclusion that Phi Sigma cannot remain static. A static condition in living organisms is the immediate prelude to senescence.

The National Council does not think that Phi Sigma needs rejuvenation. They are convinced that it has unbounded vitality, and tremendous potentiality. What the National Council does not favor is the premature maturity affected by some Chapters and many members of the organization. The list of Phi Sigmas who read papers at the Pittsburgh meeting is impressive, yet it represented only a small portion of all the biologists there.

The work of Phi Sigma is not done. Even if every important biologist in the country wore the key it would still not be done. It would be just begun.

THE dominie had said grace, when the four-year-old daughter of the hostess, who sat opposite the minister, looked up and said:

"That's not the kind of grace my papa says."

"No?" sweetly asked the minister, "and what kind of grace does your papa say?"

"Why," said the little one, "he came home last night and when he sat down at the table he just said, 'Good God, what a supper!' "

—*Williams & Wilkins Kalends.*

The Pittsburgh Meetings

By Ben Beach

PHI SIGMA members and alumni were out in force for the American Association for the Advancement of Science at Pittsburgh, December 27 to January 2. Many may have appeared on the program who are not known as members of the society because we could check only from the supplements of the directory thus far published. This is particularly hard on the newer chapters. As it was, nearly two hundred papers were read by one-hundred and fifty-six Phi Sigmas. As far as the chapter representation went, the closest available figures for persons appearing are:

32—Zeta
20—Beta
18—Mu
15—Theta
8—Rho
7—Iota
6—Xi, Tau, Alpha Epsilon
5—Delta, Kappa
4—Alpha
3—Sigma, Chi, Alpha Theta
2—Epsilon, Eta, Alpha Gamma, Alpha Eta
1—Lambda, Nu, Pi, Upsilon, Phi, Omega, Alpha Delta

The alumni and members who appeared and the titles of the papers they read are as follows:

J. E. Ackert, *Xi*—Comparative Resistance of Five Breeds of Chickens to the Nematode Ascaridia.
Lineata (Schiender)—Co-Author.
Resistant and Susceptible Strain of White Minorca Chickens to the Nematode Ascaridia lineata.—Co-Author.

F. W. Allen, *Kappa*—The Influence of Sugar and of Nitrogen Fertilizers and the Ringing of Gravenstein Apple Trees upon the Maturity of the fruit.
Storage of Yellow Newtown Apples in Chambers supplied with Artificial Atmosphere.

E. J. Anderson, *Iota*—Chemical and Enzymatic Studies of Uneven Ripening of Concord Grapes.—Co-Author.

Gladys Anderson, *Mu*—Lichen Classification.

J. E. Anderson, *Beta*—An Evaluation of Various Indices of Linguistic Development.

C. A. Arnold, *Beta*—Seed-like Structures associated with Archaeopteris.

G. S. Avery, *Zeta*—Differential Distribution of Auxin in the Growing Leaf of Tobacco.

A. Avinoff, *Alpha Epsilon*—Certain Problems pertaining to the Wing Patterns of Butterflies and Moths.
Entomological Displays for Museums.

E. B. Babcock, *Mu*—Geographic Distributions, Chromosome Numbers and Phylogeny in the Crepidinae.

R. M. Bailey, *Delta*—Breeding Cucumbers Resistant to Scab.

W. M. Banfield, *Zeta*—Importance of Sanitation in Controlling Crown Gall in the Red Raspberry.—Co-Author.

Elizebeth Barto, *Lambda*—Recessive Genes in Geographic Races of Peromyscus.

J. A. Berry, *Psi*—Suitibility for Freezing Preservation of Different Varieties of Fruits and Vegetables Grown in the Pacific Northwest.—Co-Author.

H. A. Bess, *Sigma*, Biological Studies of *Lescherraultia exul* Town., Parasitic on the American and the Forest Tent Caterpillars (Diptera, Tachinidae).

L. M. Blank, *Zeta*—A Mosaic on Cabbage in Wisconsin.

H. L. Blomquist, *Tau*—The Liverworts of Central North Carolina.

C. H. Bostian, *Alpha Epsilon*—Sex-Linkage as Shown by Biparental Males in Habrobracon.

Alan Boyden, *Zeta*—Homology and its Genetic Basis.

E. P. Breakley, *Kappa*—A Method for Comparing the Ovicidal Properties of Contact Insecticides.—Co-Author.

M. Brooks, *Mu*—The Mechanism of Methylene Blue Action in CO and CN Poisoning.

S. C. Brooks, *Mu*—The Accumulation of Ions: Relation between Protoplasm and Sap in Valonia.

D. E. Brown, *Beta*—Cellular Reactions to Compression and Decompression.

E. F. Burk, *Zeta*—A Five Year Summary of Fertilizer Results on Irish Potatoes.

C. R. Burnham, *Zeta*—Abnormal Genetic Ratios in Chromosomes of Maize Associated with Pollen Abortion.

C. E. Burnside, *Beta*—Studies on the Bacteria Associated with Parafoulbrood.

C. F. Byers, *Beta*—Distribution and Species of North American Progomphus (Odonata).

S. H. Cameron, *Mu*—Nitrogen in Blossoms and Young Fruits of the Orange Tree.—Co-Author.

J. L. Cartledge, *Alpha Epsilon*—Mutation Rates for Seeds of Datura buried 22 years.—Co-Author.

W. H. Chandler, *Mu*—Little Leaf or Rosette of Fruit Trees.

L. C. Chelsey, *Tau*—The Influence of Light Upon the Sensitivity of Seedlings to X-Rays. The Possible Role of Auxin.

J. A. Chucka, *Zeta*—Acid v.s. Neutral Fertilizer in Potato Production.—Co-Author.

E. P. Churchill, *Alpha Gamma*—The Relation of the Number of Myotones and Vertebrae to the Length and Flexibility of the Body of Fishes.—Co.-Author.

J. H. Clark, *Rho*—Breeding Strawberries for a Particular Ripening Season.

L. C. Cochran, *Theta*—Taxonomy of the Fusaria that Cause Celery Wilt (Yellows).—Co-Author.
Three Forms of the Fusarium Wilt of Celery.—Co-Author.

G. H. Coons, *Theta*—Influence of Preceding Crops on Damping off of Sugar Beets.

D. C. Cooper, *Zeta*—Development of the Embryo Sac of Lilium Henryi.

W. Crosier, *Kappa*—Some Ecologic Relations of Phytophtora infestans.

I. H. Crowell, *Upsilon*—Complication of Reports on the Relative Susceptibility of Orchard Apples to the Cedar Apple Rust Disease.

M. F. Crowell, *Phi*—The Effect of Various Food Factors on the Life Cycle of the Webbing Clothes Moth, *Tineola biselliella* Hum.

S. W. Decker, *Rho*—Factors Influencing the Cooling of Packages of Fruit.

A. H. Eddins, *Sigma*—Soil Treatment with Sulphur and Limestone for the Control of Bacterial Wilt of Potatoes.

J. B. Edmonds, *Theta*—The Effect of Planting Date on the Shape of the Nancy Hall Sweet Potato.

F. B. Eggleston, *Beta*—Preliminary Report on a Study of the Deep-Water Bottom Fauna of Lake Michigan.

A. E. Emerson, *Alpha Epsilon*—Termitophile Distribution and Quanitative Characters as Indicators of Physiological Speciation in British Guiana Termites (Isoptera).

W. H. Emig, *Alpha Epsilon*—The Megagametophyte of Pinus.

S. L. Emsweller, *Mu*—Bolting Habit of Different Varieties and Inbred Lines of Onions.—Co-Author.

Corelation Between Vigor and Doubleness in Stocks.

B. D. Ezell, *Theta*—Sugar and Acidity Changes in Pears as Influenced by Variety and Maturity.—Co-Author.

Wanda K. Farr, *Iota*—The Microscopic Structure of Certain Fibrous Substances.

R. A. Fennell, *Tau*—The Relation between Temperature Kind and Concentration of Salts, Hydrogen Ion Concentration and Rate of Ingestion in Amoeba Proteus.

H. M. Fitzpatrick, *Mu*—Morphology and Development of Caliciopsic Pinea.—Co-Author.

On The Cytology and Life History of a Basidiomycetous Fungus on *Lonicera tatarica* Intermediate in Type Between the Uredinales and Auriculariaceae.

C. L. Fluke, *Zeta*—Silicates of Soda Incorporated with Lead Arsenate in the Last Regular Spray an Aid to Residue Removal.

C. L. Furrow, *Kappa*—Development of the Hermaphrodite Organs of the Valvata Tricarinata.

F. E. Gardner, *Mu*—Some Experiments in Storing Rose Bushes.—Co-Author.

M. W. Gardner, *Zeta*—Spotted Wilt of Truck Crops and Ornamental Plants.—Co-Author.

F. C. Gates, *Beta*—Heat and Drought Effects during 1934 on Vegetation in North Central Kansas.

Ida Genther, *Iota*—Types of Ovarian Injury Following X-Irradiation in Guinea Pigs.

The Oestrous-producing Principle in the Urine of Guinea Pigs with X-Irradiated Ovaries.

D. R. Goddard, *Mu*—The Reversible Heat Activation Inducing Germination and Increased Respiration in the Ascopores of Neurospora tetrasperma.

M. C. Goldsworthy, *Mu*—Copper Phosphate Mixture: A Promising Fungicide.
T. H. Goodspeed, *Mu*—Cytogenics of the 12 Primary Trisomic and Other Types Derived, in *Nicotiana Sylvestris*, via an Asynaptic Gene Alteration Induced by X-Radiation.
A. A. Granovsky, *Zeta*—The White Grub Menace to Forest Plantations.
Population Studies of Soil Insects in Relation to the Abundance of Raspberry Crown Gall.
G. A. Greathouse, *Rho*—Unfreezable—Freezable Water Equilibrium in Plant Tissues as Influenced by Sub-Zero Temperature.
E. F. Greenman, *Beta*—Incised Stone Tablets from Burial Mounds.
J. M. Hamilton, *Zeta*—Some Fungicidal Possibilities of Red Copper Oxide.—Co-Author.
H. C. Hanson, *XI*—Erosian Resistance by Native Vegetation in Badlands of Western North Dakota.
L. V. Heilbrun, *Beta*—Free and Bound Calcium in Stimulation and Injury.
P. S. Henshaw, *Zeta*—The effect of X-Rays on Differentiation in Drosophila Eggs.
G. Herzog, *XI*—Technics in North American Indian Poetry.
E. M. Hildebrand, *Zeta*—Modes of Entry of Erwinia amylovora into the Flowers of the Principal Pome Fruits.—Co-Author.
The effect of Certain Bactericides, Especially Copper Sulphate on the Longevity of Honeybees.
F. L. Hisaw, *Zeta*—Factors which Govern Ovarian Development.—Co-Author.
A physiological explanation of the Oestrous Cycle of the Rat.—Co-Author
R. W. Hodgson, *Mu*—Further Observations on Frost Injury to Sub-Tropical Fruit Plants.
M. B. Hoffman, *Theta*—The Effect of Several Summer Oils on the Carbon Dioxide Assimilation by Apple Leaves.
W. H. Horr, *Kappa*—Some Effects of Galactose Upon the Growth of Aspergillus niger and Pemin.
C. T. Hurst, *Mu*—Body Weight of Snails in Health and Parasitism.
F. B. Hutt, *Zeta*—A Relationship between Size of Egg and a Lethal Malposition of the Embryo in the Domestic Fowl.
J. C. Ireland, *Alpha Eta*—Seasonal Variation in the Chlorophyll Content of Grain Sorghums.
S. S. Ivanhoff, *Zeta*—Inoculation Tests with *Phytomonas stewarti and Phyt. Vasculara.*
E. S. James, *Upsilon*—A Note on the Anatomy and Histology of a Giant Necturus.
G. Jannsen, *Zeta*—Some Effects of Nitrogen, Phosphorus and Potassium on Vascular Anatomy of the Tomato Hypocotyls.—Co-Author.
J. C. Jensen, *Xi*—The Relation between Surface Evaporation in Lakes and Ponds and Precipitation from Local Thunderstorms in the drought area.
W. N. Jones, *Zeta*—The Profession of Chemistry.
Thomas Kerr, *Iota*—Types of Concentric Layering in the Secondary Wall and their Significance.
J. F. Kessel, *Mu*—Trichomonas Vaginitis.—Co-Author.
J. E. Kotilas, *Theta*—Influence of Preceding Crops on Damping off of Sugar

Beets.—Co-Author.

P. J. Kramer, *Upsilon*—Some Reactions of Tree Seedlings to Variations in Length of Day.

G. R. La Rue, *Beta*—A Trematode Parasite of the Dog in Northern Ontario.

O. Lilleland, *Mu*—A Growth Study of the Cherry Fruit.

M. B. Linford, *Zeta*—Diurnal Fluctuation and Water Deficit Shrinkage in Thickness of Pineapple Leaves.
Cripple and Dark Stripe of Pineapples in Hawaii.
Relation of Fruitlet Weight to Growth and Quality in the Multiple Fruit of Pineapple.

C. B. Lipman, *Mu*—Further Evidence of the Longevity of Bacteria.

L. G. Livingstone, *Alpha Delta*—The Present Status of the Plasmodesmato Problem.—Co-Author.

E. S. McDonough, *Theta*—Nuclear Behavior in Germinating Oospores of *Scelerospora Graminicola*.

R. L. McMunn, *Rho*—The Final Swell of the Elberta Peach.—Co-Author.
Seven Years Results of the Hardiness of the Elberta Fruit Buds from a Fertilizer Experiment.

G. W. Martin, *Psi*—Atractobasidium, A New Genus of the Tremellaceae.

Mildred Mathias, *Iota*—The Phylogenetic Position of the Umbelliferae.

E. V. Miller, *Theta*—Relation of Storage Temperature to Reductase Activity in Lemons.

V. G. Milum, *Zeta*—Observations of the Habits and Variation in Size of the Greater Wax Moth, *Galleria Mellonella*.—Co-Author.

P. A. Moody, *Beta*—Application of the Dale Anaphylactic Test to Study of Zoological Specificity.

J. A. Moore, *Sigma*—The Anatomy of the Flower in the Papilionaceous Leguminosae.

Morris Moore, *Alpha Theta*—A Generalized Infection of the Head Caused by a New Hemispora.

W. F. Morofsky, *Theta*—A Preliminary Survey of the Insect Fauna of Some Typical Michigan Trout Streams.

D. C. Mote, *Alpha*—The Holly Scale and Other Insect Pests of English Holly in Oregon.

M. R. Murray, *Iota*—A Method of Cultivating Tissue from Granulating Wounds in the Adult Dog.—Co-Author.

Ray Nelson, *Theta*—Taxonomy of the Fusaria that Cause Celery Wilt (Yellows).—Co-Author.

E. L. Overholser, *Alpha Theta*—The Effect of Spraying Apple Leaves with Certain Less-Used Materials upon their Carbon Dioxide Intake.

D. M. Pace, *Tau*—The Function of Sulphur in Various Forms in Growth in Chilmonas Paramecium.—Co-Author.

D. H. Palmiter, *Zeta*—Some Environmental Factors Influencing the Development of Apple Hairy Root and *Phytomonas rhizogenes*.—Co-Author.

J. R. Parker, *Chi*—The 1934 Grasshopper Outbreak.

A. Peterson, *Mu*—A Manual of Entomological Equipment and Methods. Terrestrial Insects.

N. A. Pettinger, *Rho*—The Effect of Soil Reaction upon the Growth of Ornamental Plants.
C. B. Phillip, *Chi*—Epizootic Tick-borne Tularaemia in Sheep in Montana.
C. L. Porter, *Beta*—Lime Loving Fungi from Australian Sands.
M. M. Rhoades, *Beta*—A New Aleurone Color in Maize.
A. J. Riker, *Zeta*—Resistance of Sweet Corn to Bacteria Wilt.—Co-Author. Biochemic Studies on the Metabolism of Crown-Gall and Hairy Root Bacteria and on the Composition of Crown Galls.—Co-Author.
J. W. Roberts, *Theta*—Copper Sulphate Mixture—A Promising Fungicide.—Co-Author.
A. F. Roe, *Beta*—The Preservation of Anaerobes by Desiccation.
H. Ruthford, *Rho*—A Method for the Reduction of Seismic Reflection Data.
J. E. Sass, *Beta*—The Presence of the Golgi Apparatus in the Basidium.
J. D. Syre, *Alpha*—A Method of Measuring the Extent of Corn Root System by Use of Lithium Salts.—Co-Author.
H. A. Schomer, *Tau*—Photosynthesis of Pure Cultures of Algae at Different Depths in Wisconsin Lakes.
A. L. Schraeder, *Zeta*—Effect of Fall and Spring Applications of Various Nitrogen Fertilizers on Fruit Tree in Maryland.
G. W. Scott, *Mu*—Observation of Inbred Lines of Bush Varieties of Cucurbita Pepo.
E. M. Searls, *Alpha*—The Control of Some Ectoparasites of Laboratory Rats by Atomized Pyrethrum Extracts in Oil.
M. W. Sentius, *Beta*—Mechanical Analyses of Sediments of Lake Michigan.
G. M. Shear, *Rho*—Available Calcium in Frenching Soils.
F. F. Smith, *Iota*—Control Experiments on Certain Species of Tarsonemus Mites with Notes on the Life History of the Broad Mite.
G. A. Smith, *Alpha Gamma*—Lag in the Division of Time of Paramecium Caudatum.
E. Snyder, *Eta*—Vinifera Grape Cion Influence on Dog Ridge Stock.—Co-Author. Breeding for Seedless Vinifera Grapes.
M. H. Soule, *Beta*—The Relation of Human Leprosy and Rat Leprosy.
H. B. Steinbach, *Beta*—Free and Bound Calcium in Stimulation and Injury.
F. H. Steinmetz, *Delta*—A Method of Determining the Rate of Decay in Wood.
Delbert Schwartz, *Theta*—The Development of Calvatia Craniiformis.
C. E. Taft, *Omega*—The Algae of Oklahoma.
R. P. Thomas, *Zeta*—The Use of Rapid Chemical Tests on Maryland Soils.
P. E. Tilford, *Zeta*—Fasciation of Sweet Peas, A Bacterial Disease.
E. C. Tims, *Zeta*—Severe Type of Mosaic on a Sugar-Cane Variety.
M. A. Tingley, *Alpha Epsilon*—Effect of Crop and Treatment on Winter Injury to Baldwins.
C. M. Tomkins, *Zeta*—Spotted Wilt of Truck Crops and Ornamental Plants.
H. L. Van Cleave, *Rho*—Studies on the Life Cycle and on Reversal of Symmetry in a Freshwater Snail, Campeloma rufum.
John Van Oosten, *Beta*—The Temperature of Lake Michigan.
G. B. Wagner, *Zeta*—The Vacuum Fumigation of Flour Products with HCN.
G. F. Waldo, *Theta*—Factors Relating to Cold Resistance of Strawberry Plants.
E. H. Walker, *Zeta*—A Bibliography of Eastern Asiatic Botany.—Co-Author.

A. E. Waller, *Alpha*—Photoperiodism in Dwarf Bearded Iris and in Hybrids between Tall and Dwarf Types.

L. M. Ware, *Theta*—Relation of the Size of Seed Piece to Recovery of the Irish Potato after Killing of the Tops by Cold.
Polishing, Bleaching, and Drying the Pecan.

V. M. Watts—Some Effects of Nitrogen, Phosphorus and Potassium on Vascular Anatomy of Tomato Hypocotyls.

G. F. Weber, *Zeta*—An Aerial Rhizoctonia on Beans.

J. E. Webster, *Alpha Eta*—Chemical and Enzymatic Studies of Uneven Ripening of Concord Grapes.—Co-Author.

R. L. Webster, *Alpha Theta*—Increasing Arsenic Deposit to Control the Coddling Moth.—Co-Author.

P. S. Welch, *Beta*—A Qualitative Study of the Plankton of Northern Michigan Bog Lakes.

P. W. Whiting, *Delta*—Impaternate Daughters of Females Heterozygous for a Sex-Linked Gene in Habrobracon.—Co-Author.

F. A. Wolf, *Tau*—Sooty Blotch of Clover.

G. Woodbury, *Delta*—The Relation of Physical Types to Mound Areas.

A. E. Woodhead, *Beta*—The Germ Cell Cycle in Trematodes.
Reproduction in Leucochloridium.

A. E. Woodward, *Delta*—Parthenogenesis in Asteria Eggs by Means of Iodine-Containing Compounds.

P. A. Young, *Chi*—A New Variety of Tilletia Tritica in Montana.
Sclerotinia Rot of Pumpkin and Squash.
Microscopic Observations on Forming and Breaking Cresoap Emulsions of Petroleum Oils.

P. W. Zimmerman, *Eta*—The Influence of Certain Gases Upon Plants.

NOW WE KNOW!

WE DID not realize what a perilous state we are in until we read the advertisements saying, "What the world needs is:

A new philosophy.
A new religion,
A new business order,
A new economic system,
A new engineering method,
A new moral code,
A new idea of science,
A new universal language."

Outside of this we believe the world is all OK and will swing along through the next few centuries in much the same way that it has swung in the past.

—*Williams & Wilkins Kalends.*

Chapter Membership

Report to the National Council

SOME of the chapters of Phi Sigma propose very few members for initiation. Do they understand the constitutional provisions for membership? Or do they prefer to ignore them? We have been told there is a chapter which regularly refuses to accept anyone but zoologists, although there are other branches of biology taught on its home campus. And then there is the struggling chapter which will not have anything to do with the students from the Agricultural school which is a part of the university. Of course there may always be reasons for looking down on botanists,—and cow-college people,—but we have never found out why. This kind of mental snobbery gets beyond us.

Whatever these chapters choose to do, it is nice for the rest of the more broadminded groups to know that Phi Sigma isn't so hide-bound in its requirements for membership. Any of the older members of the really ancient chapters they will tell you that there used to be a long list of departments of biological study from which members could be chosen.

Now, we understand, one doesn't even have to be in college to belong to and hold active membership in a chapter. We are told that some chapters are electing to active part in their work local biologists whose interests lie in the direction of research. And some of these non-college members do not even live in the same city in which the chapter is located. One college has gone so far as to accept into membership the students and faculty of a neighboring college. That is sensible.

Eligibility, after all, is a question of preparation, attitude and ability. It is the caliber of the initiate, not his hat-maker, lodge button or fraternity pin that interests the older members. When you come to think of it, biology is a very wide subject. We understand that the Biological Division at the University of Chicago is the largest on the campus. So large in fact that the head of the division has almost as much responsibility as President Hutchins himself.

Chapters should ask first if a man is interested in research,—what his possibilities along that line are. Next find out if his work falls into the biological field. He is eligible for membership if he has the potentiality for creative and productive, as opposed to absorptive and static, scholarship, and if his major studies fall into any one of the following biological fields:

Agriculture
Agronomy
Anatomy
Animal Husbandry
Anthropology
Apiculture
Bacteriology
Biology
Biometry
Botany
Cytology
Dairying
Ecology
Embryology
Entomology
Evolution
Genetics
Histology
Horticulture
Hygiene
Immunology
Micrology
Ornithology
Paleobotany
Paleontology
Parasitology
Pharmacognosy
Pharmacology
Phytopathology
Plant Chemistry
Plant Physiology
Physiology
Soils
Taxonomy
Zoology

Then there are the cognate but not basically biological courses in which majors may become eligible for memberships, providing their problems deal with really biological sides of the subject, as follows:

Agricultural Chemistry
Biochemistry
Biophysics
Dietetics
Dental Sciences
Eugenics
Field Crops
Fisheries
Forestry
Geology
Home Economics
Medical Sciences
Nutrition
Oceanography
Pathology
Psychology
Veterinary Science

The foregoing lists of available fields are practically the same as the ones which originated at the first national convention in Washington, 1924. They are still a safe guide for chapter officers and members in selecting candidates for initiation. Since almost every college now boasting a chapter of Phi Sigma offers many of these courses, there should be no lack of available membership material. We hope that the quantity, as well as the quality, of initiates will begin to pick up.

EDITORIALS

This Issue

THE present number of the BIOLOGIST comes to you possessing some new features, and with a few old ones suppressed. The record of Phi Sigma at Pittsburgh was so long, that we were forced to eliminate the old "Honors", "Have you Read?" and "Did you Know?" sections. This also gave us more space for our three leading contributors, Drs. Pearse, Roberts and Causey. We hope you like their contributions which are to the point, happy and appropriate. The Spring issue will be an all-chapter number, and will go to press on or about April first,—chapter secretaries and editors, please note. By that time we hope to be able to announce several new and interesting developments. In the meanwhile the Editor "has gone a gunnin' " for leading articles of the same high calibre as this issue's contributions.

Expansion

ONE of the most curious kick-backs on our announcement of the Phi Sigma expansion program last Spring was the sudden, shrill cry from certain chapters lest we hurry the fraternity into a policy of accepting "*anybody*" into membership.

The National Council has no intention of rushing into anything. Many of its members have taken active part in the normal growth of Phi Sigma, over a long period of years, and the National Council has seen more than one chapter fade out of the picture. So perhaps its members are the best judges as to what constitutes sudden expansion, or normal growth, or decay. Certainly, normal growth has slackened alarmingly, and if some expansion does not soon occur we shall find ourselves in unpleasant, not to say dangerous circumstances.

Your Editor was one of Zeta's student delegates to the first national convention ten years ago. He has seen a lot of curious,—and cussed,—things happen since then. Some of them are treated in the last Editorial in this issue. But the most insanely funny thing he has ever witnessed is the naive solemnity with which some chapters protest against over-expansion, quantity versus quality.

We are willing to bet one good, silver, Roosevelt dollar to a doughnut-hole, that the chapters which cry out most against expansion are the very ones which have kept their memberships socially "select" and educationally "unique",—and, therefore, correspondingly—"stale, flat, and unprofitable", because scientifically sterile!

The Coming Revolution

WHATEVER its cause, the world's unrest today affords the intelligent observer an interesting spectacle of several different political and economic systems being tried out at one and the same time. Russia and Mexico are experimenting with absolute socialization, Germany and Italy with national regimentation, The United States with supervision or "planned economy," France continues under her old capitalistic system. England, as she usually boasts, is "muddling" along.

The nicest thing about it all is that anyone who is discontented with his own particular national ethos can easily find one to suit himself, and betake him thence. Maybe that is why we hear so little now from the campus saviors of the nation who used to view with perturbed alarm the spectacle of this country wallowing in the slough of a system they disapproved. With about every conceivable political system being put into practice, and all succeeding about equally poorly, the professional alarmist has the wind jolly well taken out of his sails,—or larynx.

On Taking Stock

IT is said that it is good for us "to search and try our ways" in our personal lives. Everyone does it, sooner or later,—most of us after we have made fools of ourselves. The wise man rises to success because he frequently checks his course, his motives and the results of his actions. The business man has his annual inventory. The nation periodically searches its ways and changes its ruling parties. All colleges and universities see to it with a grim determination that the student searches and tries his intellectual ways by frequent examinations. Success in any field seems, therefore, to be predicated upon frequent and careful taking of stock in one's interests, ambitions and accomplishments, in

assessing them as liabilities or otherwise, and in drawing suitable appropriate and effective conclusions therefrom.

No phase of American collegiate life has been so much the creature of its era as our fraternity system. The social fraternity,—and to some extent even the professional and honorary organizations,—have been taking stock, searching and trying their ways, with profitable results. Those which have neglected or refused to do so have been relegated to the scholastic dump-heap. Many a campus today has more than one empty fraternity or sorority house whose darkened windows tell the sad tale of would-be students whose empty heads and sightless eyes could not perceive the things that were coming onto the educational world. The reason for their failure to stand in the day of tribulation is not hard to seek. Elementary genetics gives the analogic answer. They kept too close to one strain of student blood, to rigorously held to a single type, refused to be democratic, demanded too much in a social way, and too little in scholastic values. The result was inevitable. They have gone, and their empty memory is a warning to all student organizations.

Honor fraternities may go the way of all fraternity flesh just as easily as the social groups. PHI SIGMA has its own pitiful little roster of dead and dormant chapters. In too many cases the main reason for their demise lay in the fact that members, both student and faculty, held too close to the social model. Too much stress was placed on typically undergraduate standards,—compatibility, social desirability, and the like. Not infrequently memberships have been recruited entirely from one particular school, department, or course, when, as is indicated in another article in this issue of the BIOLOGIST, many others could have contributed a saving amount of new and energetic blood to carry the chapter over all obstacles toward scholastic eminence and immortality.

There are chapters of PHI SIGMA which still hobble along under self imposed restrictions antedating, in some cases, their acceptance into the fraternity. Such chapters proudly maintain a narrow circle of selection and think that thereby they are elevating the standard of the society. In reality they are plotting their own destruction, as well as bringing the whole society under criticism. Such chapters are false to themselves, to their own schools, and Phi Sigma. They hamper their own growth and development, they do not stimulate biological research in all its phases on their own campuses, and they block the healthy expansion of the society. It is time for some of our chapters to take stock, to "search and try" their ways.

ANABOLICS

SMITHONIAN INSTITUTION
BUREAU OF AMERICAN ETHNOLOGY
WASHINGTON, D. C.

May 12, 1934*

Dear Doctor Keefe:

Enclosed is an article which, if it answers your purpose, you may use in the Biologist. I do not know whether it is the sort of thing you had in mind or not but it may, as you suggested in a previous letter "open the eyes of the Phi Sigma members—" so far as other fields of activity are concerned. I must admit that in some ways the paper is facetious and perhaps not as dignified as it should be. If it does not meet with your approval do not hesitate to turn it down or to make such changes as you see fit. I am not the least bit touchy about such things.

Am glad to know that the National Council had such an enjoyable meeting at Denver. I had an unusually pleasant time during the years I was there and while I was not a member of Phi Sigma until the very end of my days at the University I enjoyed the associations very much. The early part of my college career was devoted to history and political science and I did not take the step from history to archaeology until I commenced graduate work, hence did not come in close contact with the scientific group. As a matter of fact my transition, so to speak, occurred at the same time as Dr. Renaud's. All through my undergraduate days he was the head of the Romance Language Department and my associations with him were in French and Spanish classes. As an instructor in his department, while doing some graduate work, my interests followed along with his and we both finally shifted completely into anthropology.

With best regards, I am

Sincerely yours,

FRANK H. H. ROBERTS, JR.

**Denverites will enjoy this letter.—A.K.*

University of Arkansas

July 14, 1934

Dear Dr. Keefe:

Many thanks for the copies of the Biologist and for your promise to put me on the mailing list. The issue was a fine one. I'll try to repay you with something some time when you are hard up in filling space.

I didn't have any expectation of your getting down here. I notice that this typewriter has that quaint symbol ($$$) which you used. I presume it had some meaning back in the good old days when Pithecanthropus was professor at dear old Trinil University, but it's vestigial these days. I hope to get to the Xmas meetings this year, maybe you can do likewise.

We had a wee rain this evening. That may sound like trying to make conversation, but it's not. It's been so hot and dry here that the hens are no longer oviparous. It's a bit startling to see an old hen squat and lay a two week old chicken! I'd tell you some more about the biological happenings here, but you printed my letter and I can't take a chance.

With best regards, I am

Yours sincerely,

David Causey.

We would like to read a new "Zoology, as It might Have Been" by Dr. Causey.—A.K.

* * * * *

Esquire
THE MAGAZINE FOR MEN
NEW YORK CHICAGO

July 20th, 1934

Dear Mr. Keefe:

In answer to your letter of July 14th, we have mailed you under separate cover, a cut on the biology cartoon as you requested. I hope that you will find this satisfactory for your purpose, and that you will return the cut to us as soon as possible.

We will be glad to cooperate with you on any further material of this nature, and permission is cordially extended to make use of any

printed matter in Esquire which you think might adapt itself to use in the Biologist.

Thanking you for your interest, I am,

Sincerely yours,

PHILLIP ANDREWS
Esquire

To ESQUIRE, and Mr. Andrews, many thanks.—A.K.

* * * * *

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL
WARD MEMORIAL BUILDING
CHICAGO, ILLINOIS

September 18, 1934

Dear Prof. Keefe:

I am just back from a two months' vacation in Old Mexico, and find both your letter, and the copies of the Biologist, each of which I appreciate very much. It is difficult to get my bearings again, but I do recall with much pleasure our correspondence, and while much of the detail has eluded me, need I tell you I am still an outcast so far as the article is concerned. In any event, if the little tale fitted in with your plans, we can afford to take a chance on the rest.

It will be a great pleasure to see the Biologist and if the spirit moves, possibly I might try again.

With all good wishes,
I am yours very sincerely
ARTHUR I. KENDALL

There will always be room for Dr. Kendall's articles in the BIOLOGIST.—A.K.

* * * * *

L. G. BALFOUR COMPANY
ATTLEBORO, MASSACHUSETTS

September 26, 1934

Dear Dr. Keefe:

The L. G. Balfour Company as well as the entire greek letter world will be indebted to you for your Editorial "My Fraternity Pin." This is receiving favorable comment in all parts of the country.

Sincerely,
L. G. BALFOUR COMPANY
L. G. BALFOUR

Thank you, Mr. Balfour.—A.K.

BOOK REVIEWS

ADAM'S ANCESTORS, L. S. B. Leakey, Longmans, Green & Co. New York. 1934. $3.50.

Those of us who have not taken a course in anthropology need this sort of book. The author has avoided technical words as far as possible, striving to answer many of the questions prehistorians are continually asked to explain. The fact that the author is the discoverer of the Kanjera and the Kannam Man in East Africa lends the weight of anthropological authority to his interesting presentation.

AN ELEMENTARY COURSE IN PHOTOGRAPHY, Eastman Kodak Company.—Rochester, N. Y. 1934. Free.

This mimeographed treatise forms an instructor's outline for a twenty-eight lesson course in photography, chiefly as a hobby. It would be ideal for young college people who spend their summers as counsellors in camps, or who are interested in scouting. The material is in no sense of college caliber, but any wideawake collegian could use it to advantage, providing of course, he had at least a working knowledge of photography.

ANIMAL BIOLOGY, Robert H. Wolcott.—McGraw-Hill Book Company, Inc. New York. 1933. $3.50.

This is an interesting text for a very complete course in freshman zoology. It would have a wide appeal if someone would translate it into the lucid English demanded by today's poorly equipped high school graduates. The following sentence from page 422 is an admirable example of saying a thing and then unsaying it: "When one compares the higher apes, especially when they have been affected by human teaching, and the uncivilized human races, the gap does not appear so wide, although it still remains." And the following expression smacks of certain gruesome nursery stories: "—predatism being the eating up of one animal by another." (p. 498).

BEFORE THE DAWN, John Taine (Eric Temple Bell).—The Williams & Wilkins Company. Baltimore. 1934. $2.00.

So much has been written and said about Professor Bell's incursion into the land of fantasy that it hardly calls for further comment from this reviewer. However, some of the readers of the BIOLOGIST may not as yet have chanced upon this extraordinary book. If you haven't

already done so, by all means do not forget it. If your librarian hasn't got it make a scene and scare her into getting it. Better still, buy it yourself, read it, and then make a good scout of yourself by giving it to some budding scientist of your acquaintance for a birthday present. Thus will your generosity bless both him that gives, and him that receives.

BIRD PORTRAITS IN COLOR, Thomas S. Roberts.—University of Minnesota Press. Minneapolis, Minn. 1934. $3.50.

To see this work is to want it,—and the price is within the reach of the smallest purse. The publishers claim that "Ninety-two full page illustrations, unsurpassed in brilliancy and accuracy of color, make this a volume without a rival among popular bird books." Recalling the number of utterly disappointing bird books we have seen, this is the one book whose publishers are telling the truth. A perfectly gorgeous book for the home library, and the ornithologist,—although we suspect that most biologists' fingers will itch for it if they ever see it.

THE CHANGING WORLD OF THE ICE AGE, R. A. Daly.—Yale University Press. New Haven. 1934. $5.00.

The trend of Ecology, both plant and animal, as well as of taxonomic procedure, points decidedly geology-wards, and the biological library of today is weak without adequate references on this side of the question. Professor Daly's book is based on this year's Silliman lectures at Yale. This in itself is warrant for the authority of the author and his book, but it does nothing to indicate how well it has been produced. The printing, illustrations, maps and bibliography leave little to be desired. Perhaps the best recommendation for this particular work is its freedom from the technicalities so often encountered in highly specialized studies. This book is written so that one who is not a geologist by profession can understand it!

A DECADE OF PROGRESS IN EUGENICS. The Williams & Wilkins Co., Baltimore. 1934. Pp. x, 531. $6.00.

The sub-title, "Scientific Papers of the Third International Congress of Eugenics" explains the content and purpose of this work. Any practical biologist will find among the addresses and papers a number of fascinating studies none the less interesting because their authors have an *a priori* conclusion to sustain. This reviewer has already made use of several quotations from the volume to stimulate discussion in class work, sometimes with amusing results.

EARLY FORERUNNERS OF MAN, W. E. Le Gros Clark.—William Wood and Company. Baltimore. 1934. $5.00.

A series of carefully organized studies on the phylogeny of the primates based on their structural and physiological systems, by the Professor of Anatomy at Oxford, this work commends itself not only to the anthropologist, but to the general biologist as well.

THE ELASMOBRANCH FISHES, J. Frank Daniel.—University of California Press. Berkeley. 1934. $5.00.

This third revised edition of Daniel's classic work is unquestionably a model monograph. The clean readable type, the profuse bibliographies, the copious illustrations, and the really complete index leave little to be desired. Another book which should be in every college library.

EXPLORING WITH THE MICROSCOPE, Raymond F. Yates.—D. Appleton-Century Co. New York. 1934. $2.00.

If you have a youthful relative or friend with a scientific urge, between the ages of 9 and 90 and an opportunity to possess or use a microscope,—here is a book that will be a most acceptable holiday, or any day, gift. No true biologist worthy of the name is ignorant of the contributions of the early microscopists to our science. We professionals still need the understanding sympathy of these hobbyists. And this handy book will help to make more of them. Incidentally, more than one of us will find helpful suggestions in it.

GEOLOGIC HISTORY AT A GLANCE, L. W. & G. L. Richards.—Stanford University Press. Stanford University, Calif. 1934. 80 cents.

Two ingenious self-explanatory charts which would be a help in any high school not to say college freshman, biology laboratory. The price is moderate, and the general lay-out makes one more and more hopeful for the future of visual education aids in this country.

GREY BEARDS AT PLAY. G. K. Chesterton.—Shead & Ward, New York, N.Y. 1934. $1.00.

This is a republication of the 1900 original. Written when the distinguished philosopher and litterateur was in his callow literary youth. Even the illustrations are by the author, and contribute to the general gaiety of his sugar coated philosophic humor which has a sting in its tail.

NEW PATTERNS IN SEX TEACHING, Frances B. Strain.—D. Appleton-Century Co. N. Y. 1934.

The "No, John, the Stork brought you to mother" type of parent will call this a nasty book. Common sense parents will welcome it as the sanest contribution to their problem. It is a happy medium between the technical works of the psychiatrist and the popular "What Every Parent Should Know" publications. Placing the responsibility for sex education exactly where it belongs,—with the parents, it fills a long-felt want. It is a book to buy,—but you won't keep it. Your young married friends will wear its covers off.

OUR PRIMITIVE CONTEMPORARIES, George P. Murdock.—Macmillan Co. New York. 1934.

Eighteen not too brief (25 to 40 pages) descriptions of as many different primitive peoples from all parts of the world constitute this handy volume by the assistant professor of the science of society at Yale. It grinds the axes of no anthropological or sociological theories, holding strictly to scientific accuracy, almost to the complete suppression of the author's personality. This does not mean that the book is uninteresting. On the contrary it is absorbingly so. It should be in every library.

PHYSICAL CHEMISTRY OF LIVING TISSUES AND LIFE PROCESSES, R. Beutner.—Williams and Wilkins. Baltimore. 1933. $5.00.

Artificial imitations of single phases of living tissue and life processes are the basis for this very opportune work. Three separate methods of approach are used in attacking life as a physico-chemical problem. The first is via membranes, osmosis and related factors; the second via crystallization and surface tensions; the third via electrically induced phenomena. Under each heading there are separate groups of discussions beginning with models, then deriving the physicochemical laws involved, and finally an application of these laws. Anyone who expects to teach even the most elementary applications of physiology should get acquainted with this book.

PIONEERING WITH WILDFLOWERS, George D. Aikin.—Published by the Author. Putney, Vt. 1933.

It is not hard to grow enthusiastic over the wild flowers one finds on a Spring collecting trip. When the possibility of having them constantly

within reach materializes, however, then there is reason for a pardonable amount of enthusiasm. Here is an interestingly written manual on the growing of wild flowers, full of authentic photographs, with a wealth of helpful details that should make rock-gardening a pale and sickly affectation, when one discovers the possibilities of growing wild flowers in simulated habitats on one's home grounds.

PLANT ECOLOGY, W. B. McDougall.—Lea & Febiger. Philadelphia. 1931. $3.00.

This newly revised second edition of a well known text has much to commend it. No graduate text, is decidedly didactic, and compresses much information into a compact form, facilitating its use in a one-semester two hour course. Aside from this it should prove handy for quick reference on the library or laboratory.

PREPARATION OF SYNTHETIC ORGANIC CHEMICALS AT ROCHESTER, Eastman Kodak Co.—Rochester, N. Y.—Free.

A booklet detailing a history and description of the Eastman method of chemical production with many illustrations of the equipment used.

RELATIVITY, THERMODYNAMICS AND COSMOLOGY, Richard C. Tolman.—Oxford Press. 1933. $8.50.

No doubt physicists and philosophers may disagree with Professor Tolman as to the meaning of the results obtained by the eminent group of scientists working on relativity, but neither can afford to omit this book from their reading lists.

Professor Tolman is to be congratulated as much for the manner of his presentation as for his proofs. Any person with a modicum of physics and astronomy can learn much from this work. The non-mathematical student may fear the imposing mathematical equations that he sees but only an elementary knowledge of differential equations is required to follow the author through all of his proofs. If a person elects to leave the mathematics to mathematicians, he can still learn all that the author has written concerning relativity and cosmology.

THE ROMANCE OF LABRADOR, Sir Wilfred Grenfell.—Macmillan. New York. 1934. $4.00.

Fourteen pageants from geologic beginnings down to the author's own time make up this absorbingly interesting book. This is not an over-statement. The reviewer read parts of the work over the college radio

station as part of a series on modern booklore. The response was gratifyingly unusual. We hope this book has a large sale. It deserves it.

THE TEACHING OF BIOLOGY, Wm. E. Cole.—D. Appleton-Century Co. New York. 1934. $2.00.

Educational methods are developing so rapidly in this country that one is really quite out of the current of the teaching profession if he does not familiarize himself with the latest in his field. A college-trained biologist often has had to seek employment in the teaching world. No matter how extensive one's preparation in biology, it may not make him a teacher. This is where a book like Dr. Cole's is a veritable God-send. Many a young biologist will have it to thank that he was able to take confident hold on high-school classes and make a favorable impression, instead of going to a C.C.C. camp or 'securing a position' with the F.E.R.A.

TERMITES AND TERMITE CONTROL, C. A. Kofoid, S. F. Light, A. C. Horner, M. Randall, W. B. Herms, E. E. Bowe.—Univ. of California Press. Berkeley. 1934. $5.00.

This is the one authoritative work,—reviewed in the last BIOLOGIST,—which should unquestionably be in every college library. That termites have become a national problem and menace warrants the hope that high school and public libraries will see the need of it shortly. No entomologist can afford to be without it. The original appeared in January, 1934, and the second edition revised was issued in December,—this is about the highest praise a technical work of this sort could possibly receive.

THE UNIVERSE AND LIFE, H. S. Jennings.—Yale University Press. New Haven. 1933. $1.50.

THE GREAT DESIGN, Frances Mason, Editor.—The Macmillan Co. New York. 1934. $2.50.

These two books are more or less antipodal in character. Dr. Jennings attempts seriously and clearly to phrase his personal philosophy of life. In so doing he dogmatizes and thereby erects it into an original theology. There will be some among Dr. Jennings' friends who will admire his candor in committing his thoughts to print, but who will not be able to agree with him. Among these will be many of the authors of the second book which Frances Mason edits with her usual success. The formidable array of talented scientists who have contributed their ideas

on the purposive nature of the universe gives this work a sphere of usefulness hard to over-estimate. It is an invaluable argument against the dyed-in-the-wool fundamentalist who thinks (as many still do) that a biological laboratory connotes the unspeakable.

VERTEBRATE PALEONTOLOGY Arthur Sherwood Romer.—University of Chicago Press. Chicago. 1933. $5.00.

Paleontologists and geologists will not be the only ones finding this book interesting and helpful. It should be a mine of information for comparative anatomists, students of evolution and taxonomists, for whom there has been no English work in this field. The appended synoptic table of vertebrate classification will be a long needed help in placing families of paleontological forms with respect to their geological and geographical distribution. A very valuable bibliography of 314 titles completes the work.

VITALISM & MECHANISM, A Discussion by V. Neal and J. F. Porter.—Sherman M. Goble. Chicago. 1934. $.50.

This little book is an interestingly designed debate summarizing the arguments both for and against the two theories in the title. No matter what position one holds, the arguments are skillfully put, and should prove helpful toward a better understanding of both sides.

CLEARING UP THE DIFFICULTY

NOW, my lad,'' said the police officer, who was investigating the case of a missing check in an office, ''I believe you are here first every morning.''

''Yes, sir.''

''And who is here next—Mr. Jones or Mr. Smith?''

''Sometimes, one, sometimes the other.''

''Well, on what days would Mr. Jones be likely to get here first?''

''I can't quite say, sir. At first he was always last, but later he begun to be earlier, till at last he was first, though before he had always been behind. He was soon late again, though lately he came a bit sooner. Just now he is much behind as before, but I expect he will come earlier sooner or later.''

''Oh, quite so,'' said the officer, ''that's all I wanted to know.''

—*Williams & Wilkins Kalends.*

CHAPTER NEWS LETTERS

(So many chapter secretaries responded to our Fall letter by sending in the list of their officers for the year, and no other news, that we are printing the entire roster as gathered from Dr. Ortenburger's files and our correspondents. Ed.)

BETA

President—William M. Clay, Zoology Department, University of Michigan, Ann Arbor, Michigan.
Vice-President—Henry Meyer, Zoology Department, University of Michigan, Ann Arbor, Michigan.
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Corresponding Secretary—T. P. Haines, Zoology Department, University of Michigan, Ann Arbor, Michigan.
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ZETA

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ETA

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THETA

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IOTA

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KAPPA

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LAMBDA

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MU

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XI

(No report received.)

PI

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Vice-President—Reinard Harkema, Box 4374 Duke Station, Durham, North Carolina.
Secretary—Helen Spangler, Box 702 College Station, Durham, North Carolina.
Treasurer—Mr. B. B. Brendt, Zoology Dept., Durham, North Carolina.

UPSILON

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PSI

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OMEGA

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Recording Secretary—Ida Weiman, 387 E. 173rd Street, New York City, New York.
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Secretary—Miles E. Drake, School of Pharmacy, c/o E. T. Stuhr, Oregon State College, Corvallis, Oregon.
Treasurer—Alfred Taylor, Dept. Zoology, Oregon State College, Corvallis, Oregon.

* * * * *

Zeta

Only yesterday I received a letter that you had written in August to Wayne Brown and which had been forwarded several times. The letter was asking for some information about the Wisconsin chapter of Phi Sigma. This fall Mr. Ullstrup who had been elected president of the chapter decided that he would be unable to look after it the way he would like to and so he resigned. I was the vice-pres. and so now have his job. Harold Foster from the Plant Pathology dept. was elected the new vice-president.

We have had two good open meetings and have had a big turnout for both of them. At the first meeting R. C. Herrin of the Physiology Dept. was the speaker. His topic was "Some Chemical Changes as the Result of Digestive Juice Loss". At the second meeting Karl Paul Link talked on Relation of Organic Chemistry to Biology. At this meeting we had the usual meeting room full and had to bring in chairs from the lab. The people from the various departments seem to be bringing out their new people very much better this year than before.

As you probably know Kenneth L. Mahony is down at Kansas City, Mo. this year. He is looking after the Botany at the new Univ. of Kansas City.

We are planning to have our banquet Dec. 13. We do not have the speaker definitely selected yet but there is to be a committee meeting this week for that.

Ole Gisvold, 805½ Williamson St., Madison, was elected editor for the chapter last spring.

HERBERT M. CLARKE

Mu

In response to your letter received today, I will send what news is available from Mu Chapter.

All the new officers selected at the end of the last semester are back on the job again except the Secretary, which office is now very ably filled by Marguerite Baldwin of the Entomology department.

Mu Chapter will start the year with a bang with a dinner meeting to be held on September 13 at the Berkeley Inn. Nominations for new members will be made at this time, and we hope that the new enrollment may be large. The after-dinner speaker of the evening will be Dr. R. O. Moody.

Initiation of new members is expected to take place the latter part of October and thus far everything points toward a lively year for Mu Chapter.

Elsie E. Halstrom

Sigma

The activities of this chapter have been more or less periodic during the past year, primarily because of low membership, depression and such limitations, but the faculty and alumni members on the campus are looking forward to a more successful year beginning with an organization meeting to be held soon after the opening of the University during the latter part of this month. During the past few months the following activities of various members are as follows:

R. L. Brooks received an M.S. in Horticulture in June and is continuing work in that field at the present time.

Paul C. Calhoun, Sigma Chapter Secretary, is at the present doing time in the Veterans Hospital at Lake City, Florida, because of a flare-up of one of those old war ailments.

Dr. O. C. Bryan, Professor of Soils in the College of Agriculture, has been employed by the Government during the summer on the extensive Erosion program in the Southeastern States.

J. T. Creighton, Assistant Professor of Entomology, has spent the summer at Ohio State doing graduate work.

R. D. Dickey, formerly Assistant Professor of Plant Pathology in the College, has been appointed Assistant Horticulturist in the Experiment Station.

C. E. Abbott, Professor of Horticulture in the College, has spent the summer at the University of Michigan doing graduate work.

W. M. Fifield received his M.S. and was appointed Assistant Horticulturist in the Experiment Station and is located at Homestead, Florida, in a branch station.

W. R. Lyle received an M.S. in Horticulture and immediately began work as a grove inspector for the State Plant Board.

Harold Mowry, former president of Sigma Chapter, has been appointed Assistant Director in Administration in the Experiment Station.

R. P. Trogden received an M.S. in June and this year starts out earning his living.

R. P. Lord is employed by the New York Botanical Gardens and is assisting Dr. J. K. Small in taxonomic work.

Dr. J. H. Hubbell, Professor Biology, has spent the summer at the University of Michigan doing special taxonomic work on certain groups of insects in the Museum.

G. A. Weber.

Upsílon

Miss Ethel Belk, of the Department of Botany, took a trip to South Dakota where she collected specimens for the department's herbarium. She also visited Washington, D. C. in the latter part of the summer.

Dr. A. T. Evans, of the Department of Botany, spent a portion of his vacation in Chicago and northern Wisconsin. He made a collection of the plant life along Lake Superior.

Dr. O. K. Stark collected some interesting specimens of bog flora at Clear Lake, Indiana. These specimens will be placed in the Botany Department's herbarium.

Professor B. T. Sandefur, of the Department of Geology, took a group of students on a ten week's trip through New England and visited the mining regions of Ontario and Quebec. The party returned through the copper and iron regions of Michigan.

Dr. W. H. Shideler, of the Department of Geology, did some field work in Kentucky and Tennessee. He also spent a considerable portion of the summer in research on paleontology and stratigraphy.

Mr. R. F. Strete, instructor of Geology, taught at Wittenberg College during the summer term.

Mr. J. J. Wolford, assistant professor of Geology, took a party of students on an Appalachian trip on which problems of geological inter-

est were studied. During the remainder of the summer Mr. Wolford was on a trip through the Southwest and along the Coast; he returned through the Northwest. While in the West he studied the main geographical features in the National Parks.

Mr. M. W. Boesel, assistant professor of Zoology, continued graduate work at Cornell all summer. He has now returned to Miami University after having been granted a leave of absence.

Dr. R. A. Hefner, of the Department of Zoology, taught at Miami University until the end of July at which time he continued the work on his Biological Sanctuary. He also identified a number of myriopods for the United States Department of Agriculture.

Mr. Walter S. Wilde, instructor of Zoology, has returned to Minnesota where he will continue graduate work.

Dr. S. R. Williams, of the Department of Zoology, taught at the Ohio State Laboratory at Put-in-Bay, Ohio during the summer.

Miss Irene Bucholtz, a 1933 graduate of Miami University, spent ten weeks as a nature counselor at Camp White, Bantam Lake, Conn. She visited Black Spruce Bog on Mohawk Mountain. She also collected a number of sedges and flowering plants which will be added to the Botany Department's herbarium.

Mr. Robert Radabaugh, of the class of 1935, was on the geological trip headed by Professor B. T. Sandefur. Some of the points of interest were Niagara Falls, Watkins Glen, Boston, Montreal, Quebec and the Michigan School of Mines. All of the great mineral deposits of eastern Canada were visited, and many specimens were sent back to the University.

Mr. Joseph Roth, a graduate of last year, spent a portion of his summer in the Great Smoky Mountain region where he made a collection of insects and millipedes.

Wilfred Black.

Alpha Beta

Alpha Beta Chapter of Phi Sigma will soon be active again on the college campus and the local members will welcome back those who will be coming in within the week.

During the summer months most of our members scattered throughout the United States. Some of them returned to their homes and have been lost to us by graduation. Others are taking up new lines of work. However, we are looking forward to a busy fall term

and are expecting much from the new officers and members elected last fall.

Howard Ickes, our esteemed president of the past term, is continuing his study of medicine at Johns Hopkins University, Charles Teaff will also continue his work there. Donald Ruch our ex-vice-president and Margaret Knowles, corresponding secretary will be applying their various abilities in the teaching field and are on the faculties of the local high-schools.

Charles Hopkins is with the Goodyear Flying Squadron and Ellis Smith is with an Akron Rubber Company. Henry Yaggi will follow up medicine at the University of Rochester and Horace Rainsberger will teach in Beach City High School. Several other members have accepted good positions or are planning further study in medical schools.

The last Phi Sigma meeting of the spring term was closed with an informal get-together which was very enjoyable to all those present. We are hoping that there will be more of the informal meetings in the future and are planning a series of interesting lectures for the winter months.

Here's to the new officers and our beloved friends and advisors Dr. Scott and Prof. Engle. May the new season be even more profitable and enjoyable not only for Alpha Beta, but for the whole of Phi Sigma.

MARGARET KNOWLES.

Alpha Theta

On May 25, Alpha Theta initiated eleven new members, bringing the total number of initiates in the chapter up to 133. The new members are: Dr. P. H. Dirstine, dean of the College of Pharmacy; Miss Marlowe Dittebrandt, student in Pharmacy; Donald Douglas, graduate student in Agronomy; Melvin Helander, student in Forestry; Melvin C. Hougan, graduate in Poultry; T. Carl Jones, Veterinary Medicine; Douglas McConaghy, Animal Husbandry; Harold Nyberg, Forestry; George Schafer, Agronomy; Richard Wellman, Plant Pathology; and G. Winton Young, graduate in Horticulture. The initiation was followed by a banquet at the Washington Hotel. Dr. Hoffman of the Geology department gave a very interesting talk on "Volcanism and Some of Its Probable Causes."

Several changes have taken place in the Department of Plant Pathology in which many Phi Sigma men were involved. Dr. Glenn Huber

has been appointed Plant Pathologist at the Western Washington Experiment Station in Puyallup. Kenneth F. Baker received his Ph.D. last June. He has been awarded a National Research Council fellowship at the University of Wisconsin. Earl J. Anderson was granted his M.S. degree in Plant Pathology and has a fellowship appointment at the University of Maryland, where he will continue his research for a Ph.D. degree. Mr. Anderson was accompanied by Mrs. Anderson, the former Miss Marion Preston, a Botany graduate from this chapter. John Milbrath, B.S., '34, was appointed teaching fellow in Botany at Oregon State College. Otto F. Schnellhardt, B.S., '33, is continuing for his M.S. degree as Research Assistant in Plant Pathology.

Many of our botany majors accept positions: Henry Northern received his M.S. degree in botany last June and is now a teaching fellow in the department of botany, University of California. May Z. Huntamer, who received her M.S. degree in botany last June is seed analyst in the State Seed Laboratories, located at Pullman, Washington. Elizabeth McKay, Ph.D. in botany, 1934, is an instructor in science at the state normal school, Ellensburg, Washington. L. A. Mullen received his Ph.D. in botany this year, and is now an instructor in botany at the University of Idaho.

Our members in the agronomy department make advancement: Donald Douglas, B.S.,'34, is an assistant in field crops, and is doing half-time graduate work in agronomy at the State College. Clarence Seely, B.S., '33, has a fellowship in agronomy and is now stationed at the branch experiment station at Lind, Washington. He will work for his M.S. degree this year. Harlow Parkins, B.S., '34, is assisting in the agronomy division of the U. S. Soil Erosion Service, located at Washington State College. George Schafer is on the federal-state Soils Survey, with operations in the Yakima Valley, Washington. He will return to school next semester.

Dr. W. A. Buice, formerly of the department of bacteriology, has been appointed Director of Laboratories, Eastern State Hospital, Medical Lake, Washington. His assistant will be another of our members, Nicholas Sullivan. Nick was happily married last summer.

Edward Gaines, forestry major and B.S. in botany in 1934, accepted a research fellowship in the division of forestry, College of Agriculture, University of California. Ed became serious minded during the summer and got married. Harold Nyberg, forestry graduate in '34, is employed on the U. S. Grazing Survey, with operations in the Wenatchee National Forest of Washington.

John F. G. Clarke was recently appointed instructor in zoology at the State College.

George W. Young was made research assistant for the Department of Horticulture in this institution.

High Vincent, who has received both the B.S. and M.S. degrees in pharmacy, has been nominated for an instructorship in the Department of Pharmacy for this year.

E. I. Robertson, formerly of the poultry department, was recently appointed Assistant County Agent of King County, Washington. He is stationed at Seattle.

Harold Gerritz is assistant State Chemist, Washington State Department of Agriculture, located at Pullman, Washington.

Alpha Theta chapter is looking forward to a year filled with activities. In order to promote interest in research among members of the local chapter, reports will be given on research projects by the members of the society. These will be presented at the regular meetings, and as many topics covered as time will permit. It is also the object of the group to continue its joint meetings with Sigma Xi, and further stimulate our interest in biological research problems.

HARLEY ENGLISH.

Alpha Iota

Since I've been away all summer, I just received your letter which was forwarded to my home. Then too, I have graduated and have been out of contact with the present members of Alpha Iota.

By way of information, our new chapter president is Miss Kathryn Stannert—a very able person who presented a paper in May on the "Winter Characteristics of the Penna. Trees." It proved to be very interesting as well as instructive. The paper was illustrated with specimens which she had gathered in a radius of ten miles of Lewisburg.

Recent papers were given on "Irradiated Milk," "The Adequate Diet," and "Sunshine and Growth." Besides the rendering of papers at our meetings, round table discussions were held on various topics of current interest, such as the sterility plan for governing the propagation of criminals and weakminded individuals. Sometimes noted men were called in to these discussions—especially wardens and doctors.

Since all of the old officers have graduated, Alpha Iota's problem will be the furthering of the activities of the chapter and getting new members who are worthy of the insignia. However, the nucleus is there,

and with the aid of Drs. Rice, Eyster, and others, the coming year should be highly successful.

For further information refer to Miss Lorraine Powell, Women's College, Lewisburg, Pa.

Sorry I can't help you out any better in this line.

MILDRED C. DAVIS.

Alpha Kappa

As this issue of THE BIOLOGIST goes to press, Alpha Kappa has not gotten under way with its fall activities, and therefore this account of the summer activities of its members is necessarily very incomplete.

At Woods Hole this summer were Margery Green who worked in Protozoology, and Marion Rositzke who studied Invertebrate Zoology. Mrs. Rose Hershkowitz was also at the M.B.L. Hilda Spieler and Helen Wilhelm spent the summer in Ithaca attending the Cornell Summer Session of Biology. Pippa Hollinghurst continued work toward her master's degree in Botany at Columbia.

We have not been any more successful in rounding up news of summer work of our faculty members, since the regular college year has not yet commenced. Dr. Jennie Simpson worked at Cornell University. Dr. Roberts Rugh continued his work at Woods Hole. Miss Theodora Nelson again assisted in ornithology at the University of Michigan Biological Station.

Our president, the former Helen L. Primrose, was married in April to Edwin Francis. Mr. Francis is assistant forester at the Shenandoah National Park Project in Virginia. The engagement of Margery Green to Lorus Milne has been announced. Mr. Milne is working toward his doctorate in entomology at Harvard University.

Alpha Kappa will resume its regular activities with a field trip in the near future. We hope to have a busy and energetic year of Phi Sigma work.

Alpha Lambda

The customary three day trip to Smith and Morehouse canyon, which took place between final examinations and commencement week, formed a delightful finale to Phi Sigma activities for the past school year. Dr. R. V. Chamberlain head of the Department of Biology, again extended his generous hospitality to the thirty members and their guests who occupied his spacious cabin and nearby camps in the pines.

The next week Master's Degrees were granted to the following members: Ruth Kirkpatrick, Marcella Nebeker, Florence Jones Mendenhall, Gerald Peterson, Lowell Woodbury and Lucile Rogers Marshall. Other members upon whom the degree of A.B. was conferred are: Horace Richards, Don Grayot, Ival Goslin, Harold Davies, Estella Calderwood, William Haymond, Minnie Scott Hansen, Dilworth Marchant and Benjamin McEwen.

Several members have spent the summer in various fields of biological research. We are happy to welcome back to the campus W. W. Newby, who after a year and a half at Stanford University returns to us with the Degree of Ph.D. Dr. Newby has made some important investigations into the subject of Cell Lineage in Urechis. Miss Lucile Rice, who has also been on leave of absence during the past year, likewise returns with the Degree of Ph.D.

Stephen Durrant has spent the summer with the U. S. Bureau of Fisheries, and has been in charge of the Fisheries' work in the Humbolt Forest in Nevada. Lowell Woodbury has been in the service of the U. S. Bureau of Fisheries in Glacier National Park.

Marcella Nebeker whose summer travels have taken her from coast to coast will be back on the campus continuing her research in bacteriology and assisting in the department. Jane Shields, who received her two-year Medical Certificate last spring, has gone to Cornell University where she will continue her study of medicine.

Lucile Rogers Marshall.

Alpha Mu

At the first meeting of the school year held October 23, 1934, the chapter was very fortunate in having as speaker Dr. T. E. Weier, a newcomer to the Botany Department here. Dr. Weier, who has just recently returned from a years study at the University of Louvain in Belgium, showed many interesting slides of the "Down House" home of Charles Darwin near London. Student life and class methods at the University of Louvain were also very interestingly discussed by Dr. Weier.

The last gathering of the society last spring was in the form of a hiking party. The summit of Mary's Peak, the highest point of the Coast Range in Oregon, being 4097 feet above sea level, was the objective. True to form and not at all to the surprise of the Oregonians, it rained steadily most of the day. Only a few ever reached the soaked

and mist-enshrouded top; the others shrewdly recalling important items which had to be taken care of back in town that day. The trip, however was not entirely a failure for several of the party returned with many interesting floral specimens and not a few returned with beautiful cases of poison oak.

Noal P. Larson, prexy of our Oregon State College branch of the Society, was just married this September to Miss Ila A. Carter. Mr. Larson graduated last June in Entomology and is now working in the department for his Master's degree. Having worked for a large hop concern in Independence last summer, he has chosen the hop aphis, Phorodon humuli, a very serious pest of the hop industry as his research problem.

Ewald Rohrman, also a graduate of last June, is working as a Fellow in Chemistry with Dr. Roger Williams. They have already published some very enlightening material on the subject of panothenic acid.

Professor C. E. Owens has taken over the position of head of the department of botany and plant pathology at Oregon State College left vacant by Dr. Barss who was appointed last year as principal botanist and associate head of the office of experiment stations in the United States Department of Agriculture at Washington, D. C.

Eldon Ball, graduate student in Entomology, is working on his problem this year of "The Insects of Oak Creek". Mr. Ball is seen much of the time engulfed in rubber boots and weighted down with nets, screens, tin pails, and bottles.

Robert Nichols is holding down the address of Christinsted, St. Crouix, Virgin Islands where he is working in the Federal Agricultural Experiment station. This is Bob's first job since graduation and he and Mrs. Nichols are enjoying $2800 per year and a fine apartment close to the building where Alexander Hamilton worked. Besides his experimental work with fruits and vegetables, Mr. Nichols also teaches biology and horticulture at the vocational institution.

Bud Crowell.

The Dachshund looks at you
With eyes so full and tender,
The Dachshund is so long and lean
And slithery and slender,
That when you pat his head on Sunday,
His little tail doesn't wag 'till Monday.

—Williams & Wilkins Kalends.

MAYBE SO

IT POSSIBLY may be that Elbert Hubbard was right in his estimate of a purchasing agent. We (the editor) are not well enough acquainted with the species to pass an opinion, so we shall let you judge for yourself, or you might ask Al Beehler if it's true. He's a printing salesman and ought to know.

Anyhow, here's what Hubbard says about them:

"The typical buyer is a man past middle life, spare, wrinkled, intelligent, cold, passive, non-committal, with eyes like a codfish, polite in contact, but at the same time unresponsive, cool, calm and damnably composed as a concrete post or a plaster-of-paris cat; a human petrification with a heart of feldspar and without charm or the friendly germ, minus bowels, passions or a sense of humor. Happily they never reproduce and all of them finally go to hell."

—Williams & Wilkins Kalends.

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I want free lunch, and I want good beer;
The feel of a swinging door against my shoulder,
And the feel of a rail on my instep.
I'd exchange, if it's me you're asking, sir,
The days that are for the days that were
When we set 'em up and lifted 'em high
And blew the foam to the azure sky
As I hope to again before I die;
When a slug of whisky was only a dime,
And a dry parched throat wasn't called a crime.
And I dream in these days when the pulse is slow
Of the dear dead past and I long to go
To Texas, down by the Rio Grande.

Envoi

Would you put an old man to a long, hard smooch
Who anyhow don't like that Mexican hooch?

—The Shop Philosopher.

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